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SAN FRANCISCO BAY PLAN

PRELIMINARY

TO PROTECT THE BAY
TO ENHANCE THE BAY

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JUN 19 1968

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SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION
507 Polk Street, San Francisco 94102 557-3686

June 17, 1968

TO: All Commissioners and Proxies
FROM: Joseph E. Bodovitz, Executive Director
SUBJECT: PRELIMINARY BAY PLAN

Attached is a copy of the Preliminary Bay Plan, drafted by the staff on the basis of the Commission's conclusions from the 23 study reports.

Policies. The Preliminary Bay Plan has two parts: policies and maps. The policies consist almost entirely of the tentative planning conclusions adopted by the Commission over the past 2-1/2 years. Where new wording has been added for clarity, or where topics not previously considered by the Commission have been presented, the new material is indicated by a vertical mark in the right margin. The policies are intended to be the foundation of the plan. They are designed to be comparable to the constitution or charter of a governmental body; they are not expected to be changed often, and then only on the basis of new conditions or new information. Application and interpretation of the policies as they affect specific Bay and shoreline areas may be expected to vary somewhat as times change, however.

Maps. The maps apply the Bay Plan policies to the existing Bay and shoreline. Most of the proposals shown on the maps have previously been discussed by the Commission in its consideration of the 23 planning reports, but some new proposals are also presented. The maps are printed in a separate packet for the Preliminary Bay Plan, but it is intended that they be included with the policies in a single volume for the Commission's final report.

Final Report. The Preliminary Bay Plan is designed to be virtually all of the main volume of the final report, except that the final version is planned to include much more art work and illustration, some color printing, and names of Commissioners, Proxies, principal Commission consultants, etc. (In addition, it is planned that the final report will include a supplement containing the most important material from the 23 planning reports on various aspects of the Bay.)

Copies of Preliminary Bay Plan. Copies of the Preliminary Bay Plan are being sent to Boards of Supervisors, Mayors of waterfront cities, city managers, planning directors, governing bodies of regional agencies (BATS, ABAG, Air Pollution Control District, etc.), and governing boards of citizens' organizations such as the Save San Francisco Bay Association, Bay Area Council, SPUR, Leagues of Women Voters, etc. A limited supply of additional copies is available for distribution to other interested individuals and organizations. Groups and individuals receiving the plan are being invited to submit comments on it, and are asked to send their comments to the Commission as soon as possible.

Advisory Committee Review. Copies of the preliminary plan have been sent to the Commission's Advisory Committee, and committee chairman George Dean has scheduled a meeting in early July to review the plan. Comments from Advisory Committee

PRELIMINARY

TO GOVERNOR RONALD REAGAN
AND MEMBERS OF THE CALIFORNIA LEGISLATURE:

We, the members of the San Francisco Bay Conservation and Development Commission, having carried out the assignments given us by the McAteer-Petris Act (Chapter 1162, Statutes of 1965), herewith submit our final report.

As directed by the McAteer-Petris Act, we have made a detailed study of the Bay and we have used this study to prepare "a comprehensive and enforceable plan for the conservation of the water of San Francisco Bay and the development of its shoreline."

Since September, 1965, we have been meeting twice a month to complete our studies and our plan. We have published reports on 23 different aspects of the Bay, ranging from the importance of marshlands and mudflats to the needs of waterfront industry. In our work, we have had the assistance of our own staff, the staffs of many other governmental agencies, and specialists in such fields as engineering, biology, governmental finance, meteorology, landscape architecture, urban design, industrial development, recreational planning, real estate appraisal, geology, and soils engineering.

As provided by the McAteer-Petris Act, the existence of our Commission will terminate on the 90th day after final adjournment of the 1969 Legislative Session. We therefore respectfully recommend that action be taken during the 1969 Session to carry out the policies we have proposed in this report, so that there will be no lapse in the efforts begun by the Legislature in 1965 to protect and enhance San Francisco Bay.

Sincerely,

MELVIN B. LANE
Chairman

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PART I.

SUMMARY

Introduction

The San Francisco Bay Conservation and Development Commission was created because of rising concern, in the Bay Area and in the Legislature, over the piecemeal diking and filling of the Bay. During the last century, this diking and filling has shrunk the Bay from about 700 square miles in area to little more than 400.

We, the members of the BCDC, are strongly opposed to needless, haphazard Bay filling. We believe the Bay should no longer be treated as ordinary real estate, available to be filled for conversion to dry land. Rather, we believe the Bay should be regarded as the single most valuable natural asset of the entire Bay region.

But we also strongly believe that the Bay can serve human needs to a much greater degree than it does today. In many ways, the Bay and shoreline are poorly used; in some areas, unimportant uses of the Bay and shoreline have crowded out high-priority uses. While the words "conservation" and "development" in the name of our Commission might appear to represent competing forces, we do not believe this is really so with regard to San Francisco Bay: intelligent application of both conservation and development are needed, and our plan seeks to achieve the proper use of each.

In this report, we are presenting the plan for San Francisco Bay that we have prepared during the past three years. The report presents the two essential parts of our plan -- our recommended policies to guide future uses of the Bay and shoreline, and our

recommended maps, illustrating the application of these policies to the present Bay and shoreline. [The maps are printed in a separate packet for the preliminary plan, but are planned for inclusion in the final plan report.] Also in this report are the principal findings from our study of the Bay; the more detailed results of our study are printed as supplements.

We believe that adoption of this plan will guarantee to future generations their rightful heritage from our generation: San Francisco Bay maintained and enhanced as a magnificent body of water that helps sustain the economy of all northern California, provides great opportunities for recreation, helps to combat air pollution, nourishes fish and wildfowl, affords scenic enjoyment, and in countless other ways helps to enrich the lives of residents of the Bay Area.

Purpose of the Bay Plan

The goal of our plan is to maintain and improve the Bay and its shoreline so as to enrich the quality of life in the San Francisco Bay Area. This means:

- Increasing the role of the Bay as one of the world's great harbors.
- Providing for growth of the water-related industry necessary to a sound economy for the Bay Area.
- Expanding recreational use of the Bay -- as a boater's paradise, a fisherman's delight, and a great body of

water that refreshes the spirit of those who view it from near or far and those who walk or stand beside it.

- Providing, in short, for attainment of maximum public benefits with a minimum of Bay filling, and protecting the Bay as a great natural resource for the benefit of present and future generations.

Major Conclusions and Policies

From our studies of San Francisco Bay, we have concluded that:

1. Uses of the Bay. Bay and shoreline development should be directly related to use of the Bay as a Bay.

2. Justifiable Filling. Some Bay filling may be justified for purposes providing substantial public benefits that are directly related to the Bay, if these same benefits could not be achieved equally well without filling. Purposes providing substantial public benefits are:

- a. Developing adequate port terminals to keep San Francisco Bay in the forefront of the world's great harbors.

- b. Developing adequate land for industries that require access to deep-water shipping.

- c. Developing expanded airport terminals and runways if regional studies demonstrate that there are no feasible sites for major airport development away from the Bay.

d. Developing close-to-home recreational opportunities, in the form of new shoreline parks, marinas, beaches, and fishing piers, for the Bay Area's growing population.

3. Filling and the Shoreline. Minor amounts of filling may be permitted if necessary to improve the attractiveness of shoreline developments, to make possible additional public access to the Bay, or to make possible additional recreational uses of the waterfront, if these improvements to shoreline development could not be achieved without filling.

4. Effects of Bay Filling. Bay filling should be limited to these purposes, however, because filling of any sort, and for any purpose, is harmful to the Bay, and thus to present and future generations of Bay Area residents. Bay filling has these harmful effects:

a. Filling destroys the habitat of fish and wildlife, threatening to disrupt the ecological balance in the Bay, and endangering the very existence of some species of birds and fish. The Bay is a complex ecological system, in which marshlands, mudflats, microorganisms, many species of fish, and many hundreds of thousands of shorebirds live in a delicate balance created by nature -- and in which seemingly minor changes, such as a new fill or dredging project, may have far-reaching and sometimes highly-destructive effects.

b. Filling endangers the scenic beauty of the Bay.

c. Filling increases the danger of water pollution, by reducing the ability of the Bay to assimilate the increasing quantities of wastes being poured into it. Filling reduces both the surface area of the Bay and the volume of water in the Bay; this reduces the ability of the Bay to maintain adequate levels of oxygen in its waters, and also reduces the strength of the tides necessary to flush wastes from the Bay.

d. Filling increases the danger of air pollution in the Bay Area, by reducing the water surface over which the fresh breezes from the ocean can blow; filling can reduce the amount of cool air reaching the "ends" of the Bay -- the San Jose and Vallejo areas -- during the summer, and filling can also diminish the strong winds necessary to disperse air pollutants.

5. Pressures to Fill. Pressures to fill the Bay for many purposes may be expected to increase as the Bay Area's population increases. New flat land will be sought for many urban uses, because most if not all of the flat land in communities bordering the Bay is already in use -- for housing, businesses, industries, roadways, etc. The Bay is particularly vulnerable to filling for two reasons:

a. The Bay is shallow. About two-thirds of the Bay is less than 18 feet deep at low tide; in the South Bay and in San Pablo Bay, the depth of the water two or three miles offshore may, at low tide, be only 5 or 6 feet.

b. Ownership of the Bay is divided. Private owners control about 22 per cent of the Bay. Cities and counties that have received free grants of land from the State control about 23 per cent of the Bay. The State owns only about 50 per cent of the Bay, and the Federal government about 5 per cent. The privately-owned lands and the State-granted lands are those closest to shore, most shallow, and thus most likely to be proposed for filling.)

Major Plan Proposals

1. Port expansion should be planned at San Francisco, Oakland, Richmond, Benicia, and Redwood City.

2. Shipping channels should be deepened from the Golden Gate to the Delta, and to the Port of Redwood City.

3. Waterfront land now used by industries that require access to deep-water shipping should continue in this use, and 19,000 acres of additional waterfront land should be reserved for water-oriented industry.

4. New shoreline parks, beaches, marinas, fishing piers, scenic drives, and hiking or bicycling pathways should be provided in many areas. (These are shown in detail on the plan maps.)

5. Bay filling should be limited to these purposes.

Carrying out the Bay Plan

1. General. A governmental agency should be created or designated by the 1969 Legislature to carry out the Bay plan. This Bay agency should be specifically authorized and directed

to carry out the plan, should be empowered to raise sufficient funds for this purpose, and should have the right to acquire land through negotiated purchase or through eminent domain if necessary.

2. Type of Agency. Preferably, the agency designated to carry out the Bay plan should be a limited regional government, concerned with more than one of the problems generally agreed to be of a regional nature in the Bay Area. Preferably, too, the governing body of this new agency should consist partly of persons directly elected by Bay Area voters and partly of persons appointed by local governments in the Bay Area.

If for any reason a limited regional government is not created in 1969, an agency should be created or designated with the single responsibility of carrying out the Bay plan. The governing body of an agency of this type should be appointed, perhaps along the lines of the present BCDC.

(The subject of Bay Area governmental needs as a whole is being studied by the Joint Legislative Committee on Bay Area Regional Organization. Pursuant to AB 911, we will supplement this report, if necessary, once the recommendations of the Joint Committee have been submitted to the Legislature.)

3. Permits for Bay Filling and Dredging. Bay filling (including installation of piers and floats) and Bay dredging should be controlled through a permit system. The Bay agency (whether a single-purpose agency or a part of a limited regional government) should be empowered to grant or deny permits for any filling and dredging

in the Bay, and any public agency or owner of privately-held lands should be required to obtain a permit before proceeding with fill or dredging. Permits should be granted or denied on the basis of the standards proposed in this report; public hearings should be held on all permit applications (except for those of a minor nature), and permits should be granted upon the affirmative vote of a majority of the members of the Bay agency's governing body.

4. Permits for Shoreline Development. The Bay agency should have limited jurisdiction over shoreline development (1) to insure that sufficient shoreline areas are reserved for priority uses -- ports, water-oriented industry, airports, water-oriented recreation, salt ponds and controlled marshes -- and (2) to provide for attractive appearance and maximum public access to the Bay around the entire shoreline. Local governments should continue to regulate shoreline development as at present, subject only to the requirements listed above. The Bay agency should administer its limited shoreline jurisdiction through a permit system.

Costs of Carrying Out the Plan

Many types of shoreline development will be financed by private investment: industrial growth, privately-operated marinas, etc. Port and airport expansion will be financed by public funds, but ports and airports generate revenues to repay all or part of the public investment. The most difficult developments to finance will be those for public recreation -- public parks, beaches, fishing

piers, etc. The recreational lands assumed to be needed for public use in the Bay plan are estimated to total acres; no detailed property appraisals have been made with regard to these recreational lands, but a reasonable estimate of their total cost is [Figures will be inserted as soon as the required information is available.]

Several Federal grant programs -- such as the Interior Department's Land and Water Conservation Fund and the Department of Housing and Urban Development's open space program -- are potential sources of funds to help pay these costs, but many grant programs require matching local funds, which, considering the present competition for public funds for many purposes, may not be easy to raise in large amounts.

In addition to the costs of development, which will total many millions of dollars of both private and public funds over the next 50 years, there are also the administrative costs of the Bay agency. The costs of keeping the Bay plan up to date, providing for engineering review and inspection of fills to insure their safety during normal settling and during earthquakes, assisting local governments in detailed shoreline planning, staff assistance in acquiring and developing recreational land, and paying normal administrative expenses are estimated at \$400-500,000 per year.

Conclusions

The Bay is a single physical mechanism in which actions affecting one part may also affect other parts. The Bay plan offers great opportunities to develop the Bay and shoreline to their highest potential, and to protect the Bay as an irreplaceable natural resource.

PART II.

OBJECTIVES

Objective 1

Protect the Bay as a great natural resource for the
benefit of present and future generations

Objective 2

Develop the Bay and its shoreline to their highest
potential with a minimum of Bay filling

PART III.

CONSERVATION
FINDINGS AND POLICIES

findings and policies concerning

FISH AND WILDLIFE in the Bay

Findings

* San Francisco Bay is by far the largest estuary along California's long coastline. It is an essential resting place, feeding area, and wintering ground for millions of birds on the Pacific Flyway from Canada to Mexico. Hundreds of species of fish are also supported by the estuarine environment that includes marshlands, mudflats, salt production lands, and open water.

* Human benefit from the fish and wildlife of the Bay includes food, economic gain, recreation, scientific research, education, and an environment for living. No comprehensive estimate of the value of fish and wildlife for these purposes is available, but such value can only increase unless man diminishes the Bay. In future decades the Bay may become of inestimable additional value as a fish and marine plant "farm," augmenting the nation's and the world's food resources for a rapidly growing population.

* Maintaining fish and wildlife depends upon availability of: (a) sufficient oxygen in the Bay waters, (b) adequate amounts of the proper foods, (c) sufficient shelter space, and (d) proper temperature, salt content, and velocity of the water. Requirements vary according to the specie of fish and wildlife. Maintenance of these habitat requirements is essential to insure for present

and future generations of Bay Area residents the benefits of fish and wildlife in the Bay. The key elements of the Bay fish and wildlife habitat are the marshes and mudflats, the total water volume and total surface area of the Bay, good water circulation and some fresh water inflow.

* Plan Map 1, Natural Resources of the Bay, indicates the shoreline areas of greatest value for shore birds and water fowl. All parts of San Francisco Bay are assumed to be important for the perpetuation of fish and other marine life because any reduction of habitat reduces the marine population in some measure.

Policies

1. The benefits of fish and wildlife in the Bay should be insured for present and future generations of Bay Area residents. Therefore, to the greatest extent feasible, the remaining marshes and mudflats around the Bay, the remaining water volume and surface area of the Bay, and fresh water inflow into the Bay should be maintained.

2. Specific habitats that are needed to prevent the extinction of any specie or that are needed to increase any specie that would provide substantial public benefits should be protected as indicated on the Plan Maps.

findings and policies concerning

WATER POLLUTION in the Bay

Findings

* San Francisco Bay receives a variety of municipal, industrial, and agricultural wastes from sources throughout its tributary drainage area. Pollution occurs when waste discharges cause water quality conditions that damage or destroy varied uses of the Bay. Thus, polluted waters may be unsafe for human contact or use, offensive to the senses, damaging or lethal to marine life, and even unsuitable for industrial use.

* Compared to rivers and estuaries in other parts of the country, San Francisco Bay is relatively unpolluted. In spite of population growth, extensive improvements in industrial and municipal waste treatment have greatly reduced the pollution that once existed in the Bay. But some parts, especially in the South Bay, are still polluted at certain times of the year. As long as the Bay continues to receive wastes from an expanding population and industry, there must be constant improvement in waste management to clean out presently polluted areas and prevent pollution problems in the future.

* While waste disposal poses a continuing threat to water quality in the Bay, present economic realities indicate that this use of Bay waters will continue into the future. If pollution is

to be prevented, wastes must be maintained at suitably low levels by: adequate treatment prior to discharge, dilution, transport to the sea, and through natural breakdown processes using dissolved oxygen in the water. Thus, in addition to requiring continuous improvements in waste treatment, the Bay must continue to be able to safely accommodate wastes through adequate flushing and an adequate supply of dissolved oxygen.

* The key elements that affect flushing and an adequate supply of dissolved oxygen are the volume of water flowing in and out with the tides, and the oxygen-absorbing and oxygen-producing surface area of the Bay, including the tidal flats.

* Several governmental study programs are now seeking to determine the best methods of controlling water quality and preventing water pollution in the Bay. The State's Bay-Delta Water Quality Control Program will present in early 1969 its plan for preventing Bay pollution.

Policies

1. To the greatest extent feasible, the remaining marshes and mudflats around the Bay, the remaining water volume and surface area of the Bay, and fresh water inflow into the Bay should be maintained.

2. Water quality in all parts of the Bay should be sufficiently high to permit water contact sports and to provide a suitable habitat for all indigenous and desirable forms of aquatic life. It is assumed that, in time, actions resulting from current governmental studies will achieve this.

findings and policies concerning

Effect of the Bay on

SMOG AND WEATHER

Findings

* The Bay plays a significant role in determining the climate of the Bay Area.

* The waters of the Bay maintain a relatively constant temperature, and this helps to moderate extremes of heat and cold in surrounding areas. The Bay surface provides a cool pathway for summertime ocean winds, enabling them to help cool areas at the "ends" of the Bay (the Santa Clara Valley and the Carquinez Strait areas).

* Filling a substantial part of the Bay -- as much as 25 per cent -- would cause (a) higher summertime temperatures and reduced rainfall in the Santa Clara Valley and the Carquinez Strait-Suisun Bay area; and (b) increases in the frequency and thickness of both fog and smog in the Bay Area. Converting Bay surface to land would increase smog-producing temperature inversions in the Bay Area; in addition, the new land would unquestionably be used for smog-producing concentrations of urban developments, including automobiles.

Policies

1. To the greatest extent feasible, the remaining water volume and surface area of the Bay should be maintained.

findings and policies concerning

WATER VOLUME AND SURFACE AREA

Findings

* Dissolved oxygen is needed to support marine life and to help break down pollutants in the water. The amount of oxygen in the Bay is largely determined by the surface area of the Bay because primary sources of oxygen are: (1) churning waves that trap oxygen from the air, (2) the water surface, which absorbs oxygen from the air, and (3) the exposed mudflats, which absorb oxygen while the tide is out and transfer it to the water when the tides come in.

* Water circulation could be greatly improved by some of the major barrier proposals that have been made for the Bay. But barriers affect -- for better or for worse -- the appearance and ecology of the Bay, sedimentation, flood control, and existing and proposed uses of the shores of the Bay. They are also very costly. For all barrier proposals fully evaluated thus far, disadvantages outweigh advantages.

* Forty per cent of the original Bay surface area has been eliminated by filling since 1850. The ability of the Bay to absorb oxygen has thus been reduced by 40 per cent.

* The dissolved oxygen that is absorbed at the Bay surface or from the mudflats must be transmitted to the deeper waters by mixing of the water. The necessary mixing is accomplished only if there

is adequate tidal flow or fresh water flow from tributaries. The strength of tidal flow and water circulation are greatly affected by the shape of the Bay bottom and the shoreline; fills, dikes, and piers can speed or retard water circulation, depending upon both the water circulation pattern in the affected area and the shape of the fill, dike, or pier.

Policies

1. The volume of water in the Bay and the surface area of the Bay should be kept as large as possible. Filling and diking that reduce water volume and surface area should therefore be allowed only where indicated on the Plan Maps (which allow filling and diking only for purposes providing substantial public benefits and only if there is no reasonable alternative).

2. Water circulation in the Bay should be maintained or improved as much as possible. Any proposed fills, dikes, or piers should be thoroughly evaluated to determine their effects upon water circulation and then modified as necessary to improve circulation or at least to minimize any harmful effects.

3. Because further study is needed before any barrier proposal to improve water circulation can be considered acceptable, the Bay plan does not include any barriers. Before any plan for a barrier is adopted in the future, the agency carrying out the Bay plan will be required to replan all of the affected shoreline and water area.

findings and policies concerning

MARSHES AND MUDFLATS Around the Bay

Findings

* Salt marshes are extraordinarily fertile. One type of marsh plant, cord grass, has seven times the food value of an equivalent acreage of wheat.

* As marsh plants decompose, their nutrients are passed to the flooding waters and thence to the mudflats and nearby shallows, where they nourish a vast marine-life nursery. In addition, large numbers of birds, including ducks and geese, come to the marshes to feed directly on the lush vegetation or on the brackish-water animals that thrive in the marsh.

* Mudflats are also an important link in the Bay's life cycle. They draw food from marshes and from open water and turn this food into forms upon which many wild birds, fish, and mammals depend.

* Most marine life in the Bay either depends directly on the marshes and mudflats for its sustenance or indirectly depends upon them by feeding upon other marine life so nourished. Shore birds depend upon the marshes and mudflats for both food and shelter.

* Algae on the mudflats, exposed to abundant light alternating with abundant water, produce and expel oxygen into the water and into the air. This is an important source of oxygen that water must have to support marine life and abate pollution.

Policies

1. Marshes and mudflats should be maintained to the fullest possible extent to conserve fish and wildlife and to abate air and water pollution. Filling and diking that eliminate marshes and mudflats should therefore be allowed only where indicated on the Plan Maps (which allow filling and diking only for purposes providing substantial public benefits and only if there is no reasonable alternative).

2. Any proposed fills, dikes, or piers should be thoroughly evaluated to determine their effects on marshes and mudflats, and then modified as necessary to minimize any harmful effects.

3. To offset possible additional losses of marshes due to necessary filling and to augment the present marshes, (a) former marshes should be restored when possible through removal of existing dikes, and (b) some new marshes should be created through carefully placed lifts of dredging spoils.

findings and policies concerning

FRESH WATER INFLOW into the Bay

Findings

* Fresh water carries about 20 to 30 per cent more dissolved oxygen than salt water. Fresh water, from tributaries around the Bay and most especially from the Delta, is an important (but not the major) source of the oxygen necessary in the waters of the Bay to support marine life and to abate pollution.

* The fresh water flow from the Sacramento and San Joaquin Rivers assists in flushing of the northern parts of the Bay system, particularly during the spring when the snows melt in the High Sierra.

* The waters of the Bay provide a gradual change from the salt of the ocean to the fresh flow of the Sacramento and San Joaquin Rivers. This gradual change appears necessary for the survival of fish such as salmon and bass as they progress upstream toward their spawning grounds, and for the survival of their fingerlings as they descend to salt water. An abrupt change from salt to fresh water would probably result in a high death rate.

* The State Water Project, which will transport water from Northern California to the southern part of the State, may divert from the Bay as much as 80 per cent of the present flow in the Sacramento and San Joaquin Rivers. Many studies are under way or

planned by federal and state agencies to determine whether this diversion will adversely affect the Bay. Strong arguments have been made that the diversion will be harmful, and equally strong arguments have been made that the effects will be minimal.

Policies

1. If conclusive evaluations determine there will be substantial damage to the oxygen content or flushing of the Bay or to marine life in the Bay and Delta resulting from diversion of fresh water inflow into the Bay, appropriate corrective measures should be taken.

findings and policies concerning

DREDGING in the Bay

Findings

* Much of the Bay bottom is covered with sediment -- silt, sand, and clay -- that has been carried by tributaries from dry land upstream. Sediment continues to flow into the Bay at the rate of about 8 million cubic yards a year. Only 30 per cent of the sediment entering the Bay is carried out the Golden Gate by the tides. The remainder settles to the bottom of the Bay, but may be picked up again by changing currents and carried to other parts of the Bay. Eventually, much of the sediment lodges in harbors and shipping channels from which it must be dredged at considerable cost.

* Dredged mud is sometimes used as a fill material, and occasionally some is barged out to sea; but most often, the sediment is simply dumped in a part of the Bay where it is expected to cause as little harm as possible. Even at the best of these dumping grounds, near Alcatraz Island, only 47 per cent of the sediment is carried out to sea by the tides; at the Yerba Buena Island dumping area, only 30 per cent is carried out the Golden Gate; and at the dumping area in Carquinez Strait, probably less than 5 per cent ever reaches the ocean. The remaining sediment is simply recirculated in the Bay by the tides, and eventually settles to the bottom where it may have to be dredged again.

* To reduce the cost of dredging harbors and navigation channels, sedimentation resulting from upstream erosion and redumping of dredged materials should be reduced as much as possible.

* Underground fresh water supplies are an important supplement to surface water now brought into the Bay Area by aqueduct from mountain reservoirs. Deep dredging of Bay mud, or excavation for tunnels or bridge piers, could strip the "cover" from the top of a fresh water reservoir under the Bay, allowing the salt water to contaminate the fresh water, or allowing the fresh water (if artesian) to escape in large quantities and thus cause land to sink. The precise location of ground water reservoirs under the Bay is not yet well known, however.

Policies

1. To prevent sedimentation resulting from dredging projects, mud from future dredging should be: (1) placed on dry land, (2) used as the source of fill for approved fill projects, (3) taken out to sea by barge or pipeline, or (4) dumped in designated parts of the Bay where the maximum possible amount will be carried out the Golden Gate on the ebb tides.

2. The Bay agency should encourage increased efforts by soil conservation districts and public works agencies in the 50,000-square-mile tributary area to continuously reduce soil erosion as much as possible.

3. To protect underground fresh water reservoirs (aquifers), (1) all proposals for dredging or construction work that could penetrate the mud "cover" should be reviewed by the State Department of Water Resources, and (2) the State Department of Water Resources should be authorized to require dredging applicants to provide additional data on ground water conditions in the area of construction to the extent necessary and reasonable in relation to the proposed project, and to prohibit dredging or construction work that might reasonably be expected to penetrate the "cover" of an aquifer.

findings and policies concerning

SHELL DEPOSITS in the Bay

Findings

* Oyster shells are dredged from the Bay floor primarily for use as lime in the production of cement. A small portion of the shells are used as soil conditioner, cattle feed, and as poultry grit by local poultry and egg producers.

* The shell deposits are an important mineral resource because the other principal source of lime, limestone, is more distantly located in Santa Clara, Santa Cruz, and San Benito Counties to the south. Cement is expensive to transport over great distances, so a nearby source of lime is important to the Bay Area economy.

Policies

1. Filling or diking that adversely affect known shell deposits, illustrated in Plan Map 1, Natural Resources of the Bay, should be allowed only for purposes providing more public benefit than the availability of the shells.

PART IV.

DEVELOPMENT

FINDINGS AND POLICIES

1911

RECEIVED

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findings and policies concerning

ECONOMIC AND POPULATION GROWTH

Findings

*Estimates of population and economic growth are important in developing predictions of future demands on the Bay -- uses of the Bay for recreation, for example, and uses of the waterfront for industry.

Policies

1. For planning purposes, preliminary estimates of total population for the nine-county Bay Area prepared by the Bay Area Transportation Study Commission in April, 1968, have been used. Middle Range estimates (comparable to California Department of Finance projections) were selected: 6,200,000 in 1980 and 7,600,000 in 1990. By extension of the BATSC data, a total population of 10,800,000 was estimated for 2020.

2. For planning purposes, employment data were needed only for manufacturing in order to estimate future demand for water-related industry. Preliminary estimates of total manufacturing employment in the nine-county Bay Area prepared by the Bay Area Transportation Study Commission in April, 1968 have been used. Estimates based on the above population estimates were selected: 432,000 in 1980 and 517,000 in 1990. By extension of the BATSC data, manufacturing employment was estimated at 765,000 for 2020.

findings and policies concerning

SAFETY OF FILLS in the Bay

Findings

* To reduce risk to life and damage to property, special consideration must be given to construction on filled lands in San Francisco Bay. (Similar consideration should be given to construction on other poor soils throughout the Bay Area, including soft natural soils, steep slopes, earthquake fault zones, and extensively graded areas, but these are beyond the scope of authority of the BCDC.)

* Virtually all fills in San Francisco Bay are placed on top of Bay mud. Under most of the Bay there is a deep, packed layer of old Bay mud. More recent deposits, called "younger Bay mud," lie on top of the older muds. The top layer of young mud presents many engineering problems. The construction of a sound fill depends in part upon the stability of the base upon which it is placed.

* Safety of a fill also depends on the manner in which the filling is done, and the materials used for the fill. Similarly, safety of a structure on fill depends on the manner in which it is built and the materials used in its construction. Construction of a fill or building that will be safe enough for the intended use requires (a) recognition and investigation of all potential hazards -- including (1) settling of a fill or a building over a

long period of time, and (2) ground failure caused by the manner of constructing the fill or by shaking during a major earthquake -- and (b) construction of the fill or building in a manner specifically designed to minimize these hazards.

* There are no minimum construction codes regulating construction of fills on Bay mud because of the absence of sufficient data upon which to base such a code. Therefore, the highest order of skilled judgment, utilizing the available knowledge of all affected disciplines, is required to (a) recognize and investigate all potential hazards of constructing a fill, and (b) design the fill and any construction thereon to minimize these hazards.

* In the absence of adequate fill construction standards or codes, the BCDC appointed a Board of Consultants consisting of geologists, civil engineers specializing in soils engineering, structural engineers, and other specialists, to review, on the basis of available knowledge, all new fills that might be permitted in the Bay plan, so that no fills would be included upon which construction might be unsafe. The Board of Consultants has completed an initial set of criteria (Appendix).

* Flood damage to fills and shoreline areas can result from a combination of heavy rainfall, high tides, and winds blowing onshore. To prevent such damage, buildings near the shoreline should be above the highest expected flood mark (nine feet above sea level is generally set as the safe mark except in the southern part of the South Bay where the higher tides require almost a foot more elevation) or should be protected by dikes of an adequate height.

* Excessive pumping from underground fresh water reservoirs has caused extensive subsidence of the ground surface in the San Jose area and as far north as Dumbarton Bridge, as indicated in Plan Map 1, Natural Resources of the Bay, which shows subsidence from 1934 to 1968. Indications are that if heavy groundwater pumping is continued indefinitely in the South Bay area, the Bayshore in the Alviso area (which has already subsided about seven feet since 1912) could subside up to seven feet more; if this occurs, extensive dikes may be needed to prevent inundation of low-lying areas by the high tides.

Policies

1. The Bay agency should appoint an adequately-empowered Board of Review competent to (a) maintain and adjust fill construction criteria as rapidly as new information becomes available, (b) review all fill proposals on the basis of the available criteria and knowledge, and (c) prescribe an inspection system to assure placement of fill according to the approved design.

2. Even if the Bay plan indicates a fill may be permissible, no fill or building should be constructed if hazards cannot be overcome adequately for the intended use in accordance with the criteria prescribed by the Board of Review.

3. To provide vitally needed information on the effects of earthquakes on all kinds of soils, installation of strong-motion seismographs should be required on all future major land fills.

In addition, the Bay agency should encourage installation of strong-motion seismographs in other developments on problem soils, and in other areas recommended by the U. S. Coast and Geodetic Survey for purposes of data comparison and evaluation.

4. To prevent damage from flooding, buildings on fill or near the shoreline should have adequate flood protection as determined by competent engineers. As a general rule, buildings near the shoreline should be at least nine feet above mean sea level (standard U.S.G.S. datum) or should be protected by dikes of an equivalent height and by any necessary pumping facilities. In the southern half of the South Bay, this height should be at least ten feet. Exceptions to the general height rule may be made for developments specifically designed to tolerate periodic flooding.

5. To minimize the potential hazard to Bayside development from subsidence due to groundwater withdrawal, all proposed developments at the lower end of the South Bay should be sufficiently high above mean sea level or sufficiently protected by dikes to allow for the effects of additional subsidence, utilizing the latest information available from the U. S. Geological Survey.

findings and policies concerning

WATERFRONT INDUSTRY on the Bay

Findings

* Industries of many types require frontage on navigable waters to receive raw materials and to distribute processed materials by ship, or need to have large volumes of water available for industrial processes. These are "waterfront industries."

* Waterfront industry, especially that dependent on deep-draft shipping, is basic to the economy of the Bay Area and of the western United States. Therefore, the needs of waterfront industry must be given high priority in the Bay plan.

* Land suitable for waterfront industry will probably be in short supply well within the next 50 years. Such land is therefore a resource that must be carefully managed and ultimately used only by industries specifically requiring a waterfront site. Waterfront industrial sites should also be planned so as to avoid wasteful use of the limited supply of land.

* Many other industries compete with waterfront industries for waterfront sites not because they require access to the Bay, but rather because they need locations close to freeways and railroads, which are often along the Bay shoreline.

Policies

1. Because shoreline land suitable for waterfront industry will eventually become scarce, such land should be reserved now specifically for the purpose. The amount of additional land to be reserved should be determined on the basis of the best data available, using a 50-year planning period to anticipate future needs as well as possible. On the basis of 50-year manufacturing employment estimates derived from data published by the Bay Area Transportation Study Commission in April 1968, the Bay plan provides 19,000 acres of new waterfront industrial land. The plan also assumes that prime industrial land now in waterfront industrial use will continue in that use.

2. The determination as to which lands to reserve for waterfront industry should be made on the basis of the following location criteria:

	<u>Maximum points</u>
Channel (or Pipeline) Access	20
Rail Access	10
Freeway Access	10
Major Highway Access	5
Size of Land Area	15
Grade of Site	10
Foundation Suitability	15
Size of Ownership Units	5
Present Use	10
Highest count	100

Preference for industrial use should be given to lands on the basis of these criteria, but with due regard that such sites not unduly interfere with ecological requirements such as the recreational and fish and wildlife resources of San Francisco Bay and with the use of these resources.

3. Lands reserved for waterfront industry should ultimately be used only by industries specifically requiring a waterfront site. All of the reserved land will not be needed at once, however, and other uses can be allowed in the interim.

4. Waterfront industrial sites should be planned so as to avoid wasteful use of the limited supply of waterfront land. The following principles should be followed to the maximum extent feasible in planning for waterfront industry:

- a. Extensive use of the shoreline for storage of raw materials, fuel, products, or wastes should not be permitted on a long-term basis. If required, such storage areas should generally either be at right angles to the main direction of the shoreline or be as far inland as feasible, so other use of the shoreline might be made possible.
- b. In areas where large acreages are available for industry, site planning should strive to provide access to the shoreline for all future plants that might locate in the same area (as a general rule, therefore, the longest dimension of plant sites should be at right angles to the shoreline). Dock or wharf facilities at waterfront

industrial concentrations should also be shared as much as possible among industries and also with public agencies, if appropriate.

- c. If the shoreline that is freed by sharing of the shoreline or inboard location of storage areas is put to public use, the industries involved may need to be compensated for any excessive added costs for longer pipelines and conveyor systems.
- d. The use of extensive land areas for waste treatment ponds by waterfront industry should be avoided as much as possible.
- e. Any new highways, railroads, or rapid transit lines in existing or future waterfront industrial areas should be located sufficiently far away from the waterfront so as not to interfere with industrial use of the waterfront. New access roads to waterfront industrial areas should be approximately at right angles to the shoreline, topography permitting.

Some filling may be necessary at some sites despite the most careful attention to proper site layout.

5. Waterfront industry should be planned so as to make industrial sites attractive as well as economically-important uses of the shoreline. The following criteria should be employed to the maximum extent possible:

- a. Air and water pollution should be minimized through enforcement of the highest feasible standards.

- b. When Bayfront hills are used for water-oriented industries, terracing should generally be required and leveling of the hills should not be permitted.
- c. Important Bay overlook points, and historic areas and structures that may be located in waterfront industrial areas, should be preserved and incorporated into the site design, if at all feasible. In addition, shoreline not actually used for shipping facilities should be used for some type of public access or recreation, to the maximum extent feasible. Public areas need not be directly accessible by private automobiles with attendant parking lots and drive-ways; access may be provided by hiking paths or by forms of public transit such as elephant trains or aerial tramways.
- d. Regulations, tax arrangements, or other devices should be drawn in a manner that encourages industries to meet the foregoing objectives. In addition, if a sizeable area is to be obtained for public use in an existing industrial site, a public agency should be authorized to assist the industry in obtaining suitable adjacent land to replace areas given over to public use. Once industry and public agencies agree on site development and design plans, the public agency should be firmly committed to (1) construct agreed-upon improvements, (2) enact and enforce controls to prevent encroachment of incompatible uses into the industrial

area, and (3) refrain from making unreasonable additional demands on the industry that were not included in the original plan approval.

6. To reduce pressure for use of waterfront areas by non-waterfront industries seeking only freeway and railroad access, freeways and railways in inland locations should be encouraged by the Bay agency. As soon as possible, the overall regional planning program should incorporate an adequate study of all (not just water-oriented) industrial land needs in the Bay Area; it may well prove necessary for a limited regional government to reserve industrial sites near railways and freeways in and around the Bay Area for industries that specifically require rail and freeway access, if pressure is to be effectively removed from waterfront areas.

findings and policies concerning

PORTS on the Bay

Findings

* San Francisco Bay is one of the world's great natural harbors, and maritime commerce is of primary importance to the entire economy of the Bay Area.

* Adequate, modern port terminals and deeper shipping channels will be needed to preserve and enhance the standing of the Bay Area as a major world harbor and to keep pace with changes in shipping technology.

* Planning for port terminals should be carefully coordinated with other shoreline uses, should consider the Ports of Sacramento and Stockton as part of the port system available to meet future needs, and should have as a major objective the avoidance of unnecessary Bay filling.

* No single port agency is responsible for coordinated planning and development of Bay Area port terminals. As a result, new port facilities may be built by whichever individual port can command the necessary financing, even though another site might serve regional needs equally well but with less Bay filling. In addition, a major investment by one port can be jeopardized by the unnecessarily duplicating actions of another Bay Area port. And,

of particular importance to proper use of the Bay, parts of the Bay can be filled, and shoreline areas taken, for unnecessarily competing port uses.

* Ports are not supported completely by revenues from shipping, but must be subsidized, either directly through taxes or else indirectly through revenues derived from housing, industry, restaurants, and other such uses of port-owned property.

Policies

1. Future port planning and development -- but not necessarily port operation -- should be guided by an overall regional port development plan.

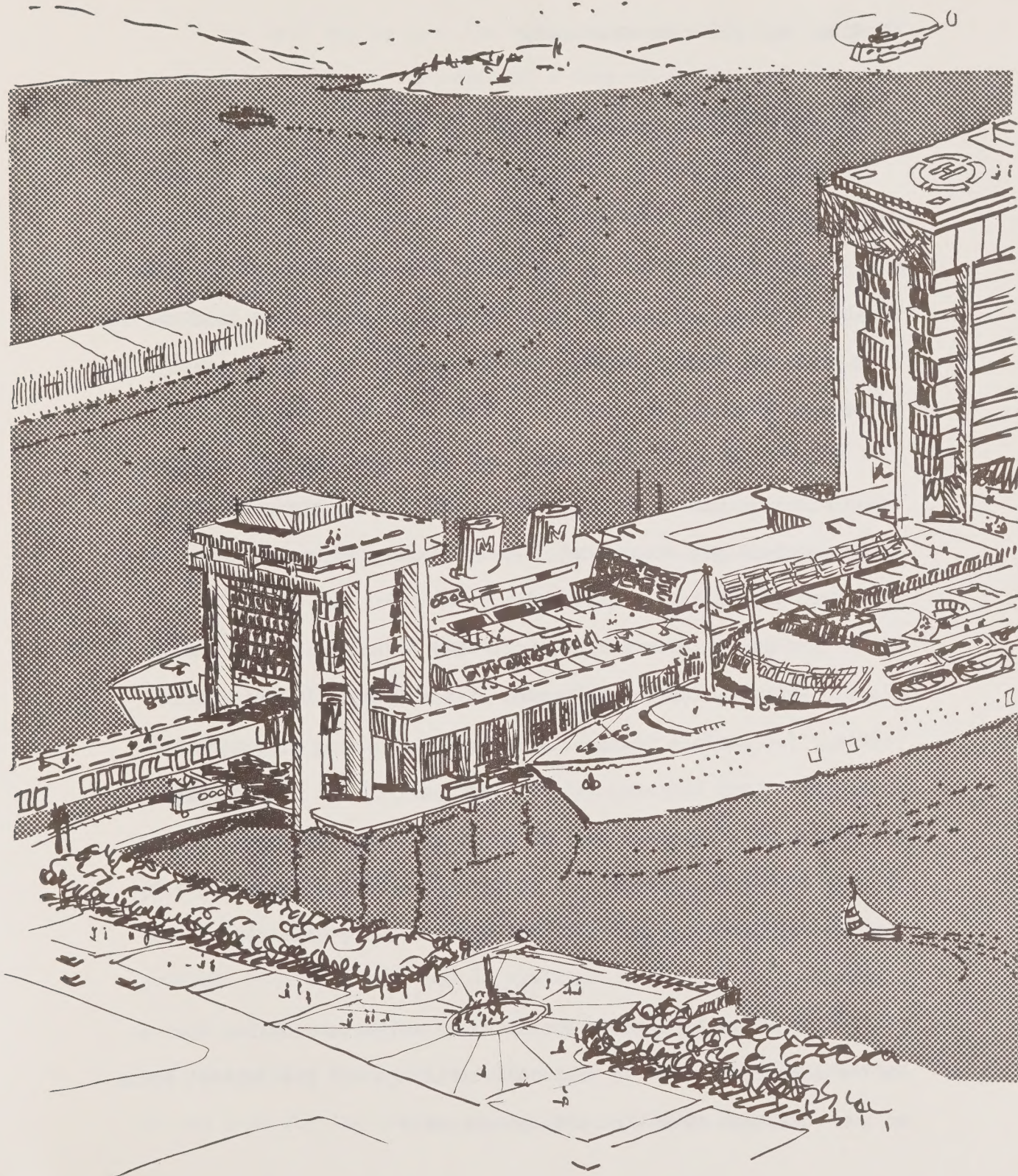
2. If some ports in the regional system do not have the funds necessary to complete facilities needed by the region, a regional agency may be required to finance or develop them. Otherwise, there will be tremendous pressure to allow the ports with the strongest finances to provide all of the regional facilities, even though this might result in unnecessary filling of the Bay.

3. Some filling and dredging will be required to provide for necessary port expansion, but any permitted fill or dredging should be in accord with an overall regional port development plan.

4. The initial regional port development plan should be as illustrated in the Plan Maps. The plan accommodates the total projected cargo tonnage requirements to the year 2020 with a minimum of Bay filling. It is possible that in the future, cargoes

moving between the Orient and the East Coast of the U.S. will be shipped across the United States by special train. This would tend to concentrate additional shipping volume in one port where special facilities would be available for transfer of cargoes between ships and the special trains. Any additional port facilities required for this method of transportation should be provided with as little Bay filling as possible.

PASSENGER SHIP TERMINAL IN A MULTIPURPOSE STRUCTURE



findings and policies concerning

AIRPORTS on the Bay

Findings

* The shoreline of the Bay is a favored location for airports because the Bay provides an open space for takeoffs and landings away from populated areas. A Bayshore location is also conveniently close to present population centers.

* The introduction of larger and faster aircraft has caused rapid rises in passenger volume and has made air transportation of cargo increasingly economical. Further sharp increases in passenger and cargo volume may be expected.

* The growth of aviation in the Bay Area will require additional land area for (a) expansion of terminals, (b) automobile parking, (c) surface transportation routes linking airports with major population centers, (d) aircraft parking and loading areas, and (e) cargo storage areas. In addition, land near airports will be sought by industries that ship large quantities of products by air, and by warehousing firms and others heavily dependent on air commerce.

* Effective, long-term operation of airports requires that a buffer zone be created to keep tall buildings and residential areas at some distance from aircraft operations.

* The best way to meet the aviation needs of the Bay Area can be determined only on the basis of a comprehensive, regional airport study. Such a study should be undertaken at the earliest possible time with the full participation of all governmental agencies having region-wide planning responsibilities and all agencies having a direct interest in the Bay Area's aviation needs and facilities. The study should include as a minimum:

- a. An analysis of expected air traffic in the Bay Area.
- b. An analysis of alternative sites for building new air terminals or expanding present ones, taking into account the effect of each site on the surrounding environment.
- c. An analysis of the surface transportation necessary to serve the alternative sites for future air terminals.
- d. An analysis of the effects of new air terminals upon the location of jobs and homes within the Bay Area.

Policies

1. For the Bay Area to have adequate airport facilities, and to minimize the harmful effects of airport expansion upon the Bay, a regional airport system plan should be prepared at the earliest possible time by a responsible regional agency.

2. Pending completion of a comprehensive airport system plan, and recognizing that various classes of airports must be included in any plan for the region or the Bay, it is assumed that:

- a. A system of smaller airports will be created throughout the region instead of one or two very large facilities. Short-range traffic (500 miles or less, e.g., San Francisco-Los Angeles), which is a major portion of total air carrier traffic, will be diverted to smaller airports, and improved ground and air transportation links will be provided among the airports in the system. Under this concept, it is assumed that San Francisco and Oakland International Airports will continue to service all long-distance flights and that pressures for continued expansion of these airports can be removed by diverting a portion of the short-range traffic to San Jose and Santa Rosa.

It is assumed that it would take three years to complete an adequate regional airport system plan and as many as five to seven years thereafter to build facilities proposed in the plan. Therefore, capital investment in, and any Bay filling for, major airports in the Bay region should be limited to improvements needed before 1979 (10 years from now).

- b. Expansion or construction of new general aviation facilities should be inland, and not on new Bay fill. New facilities should be located on the Bayshore only as it is demonstrated that no feasible alternative is available.

c. Heliports may in some instances need to be located on the shores of the Bay in order to be close to a traffic center with minimum noise interference. In such events, existing piers should be used. New piers, floats, or fill should be permitted only if it is demonstrated that no feasible alternative is available.

3. Airports located on the shores of the Bay and on fill in the Bay may include within their premises directly-required ancillary industries such as aircraft maintenance bases, if these cannot be feasibly located elsewhere, but no fill should be allowed in order to provide space for other industries.

4. If some airports in the regional system do not have the funds necessary to complete facilities needed by the region, a regional agency may be required to finance or develop them. Otherwise, there will be tremendous pressure to allow the airports with the strongest finances to provide all of the regional facilities even though this might result in unnecessary filling of the Bay.

5. To enable airports to operate without additional Bay filling, a regional agency should enact a buffer zone adequate to keep tall buildings and residential areas from interfering with aircraft operations. Pending the enactment of adequate controls by another agency, the Bay agency should prevent incompatible developments within its area of jurisdiction around the shoreline.

findings and policies concerning

SALT PONDS AND OTHER DIKED WETLANDS

Findings

* The salt ponds of the Leslie Salt Company total some 36,000 acres in the South Bay and some 10,000 acres in the North Bay. About 4,200 acres of salt ponds have been removed from salt production and are now being converted into the Redwood Shores community, which will ultimately house some 60,000 persons.

* The salt ponds are an economically important and productive use of the waters of the Bay (for extracting salt), and the salt is an important raw material for the Bay Area chemical industry.

* The extensive area of the ponds is a major supplement to the total water surface area of the Bay, with beneficial effects upon Bay Area weather and smog-prevention.

* The ponds are used as a habitat by shore birds.

* More than 50,000 acres of marshland, adjacent to the Bay but diked off from it, are maintained as duck hunting preserves, game refuges, and occasionally as farming areas. In most of these areas, tide gates permit occasional intakes of Bay water.

* The diked marshlands are as important to the wildlife as the tidal marshes. Substantial further diminution would result in a proportionate reduction in the amount of wildlife the Bay system can support.

* The ponds and other wetlands provide some of the open space character of the Bay.

Policies

1. As long as is economically feasible, the salt ponds should be maintained in salt production and the wetlands should be maintained in their present use. Special tax treatment should assure that rising property taxes do not force conversion of the ponds and other wetlands to urban development. In addition, the integrity of the salt production system should be respected (i.e., public agencies should not take for other projects ponds that are a vital part of the production system).

2. Major recreational developments should be developed out-board of the salt ponds and wetlands or in sloughs, but without jeopardizing the salt production system.

3. If, despite these steps, the Leslie Salt Company or other wetland owners desire in the future to withdraw any of their ponds or marshes from their present uses, some or all of them should be purchased and the dikes should be opened up as the last substantial opportunity man has to enlarge the Bay rather than shrink it. New dikes on the landward side of the ponds will be required in cases where the present dikes have been serving to protect the inland area, as well as the salt ponds or marshes, from inundation by the Bay waters.

4. In addition, consideration should be given to early public acquisition of "development rights" in the ponds, i.e., the public could buy the rights to use the ponds for anything but salt production. If these rights were acquired (by voluntary sale or through eminent domain), Leslie would retain ownership of the ponds and would retain unlimited rights to continue using them for salt production but would have sold the right to fill the ponds for urban development.

Similar consideration should be given to purchase of "development rights" to the duck clubs and other diked wetlands, to perpetuate them in their present uses.

findings and policies concerning

WATERFRONT PARKS, MARINAS AND FISHING PIERS

Findings

* Seven years ago, only four miles of the 276-mile Bay shoreline were being used for waterfront parks. Since then, increased interest in the Bay has resulted in development of additional parks, marinas, and other forms of water-oriented recreation. But the full recreational potential of the Bay has by no means yet been tapped.

* The demand for recreational facilities in the Bay Area will increase more rapidly than the population increases, and will be accelerated as the work week declines and as spending power per capita increases. Many more recreational facilities will be needed.

* To plan effectively for recreational uses of the Bay and shoreline, recreational needs for the next 50 years must be considered. Unless sufficient land is reserved now for recreation, much of the land suitable for recreation will have been taken for other uses by the year 2020 (50 years from now).

Policies

1. Based on an estimated future population of 10.8 million, the Plan Maps include the following facilities:

Miles of shoreline required	
Marina wet storage	45
Launching ramps	2.9
Swimming beach	<u>17</u>
Total lineal miles	64.9
Shoreline acreage required ^{1/}	
Marina ^{2/}	940
Launching ramps	2,230
Swimming beach	<u>87</u>
Total shoreline acreage	3,257
Fishing piers (000 lin. feet)	40.0

-
- ^{1/} Including parking and ancillary requirements.
^{2/} Excluding dry storage acreage estimated at 452 acres in 2020--on basis this acreage need not be provided directly on the waterfront.

For parks, there is no practical estimate of the acreage that should be provided on the shoreline of the Bay, but it is assumed the largest possible portion of the total regional requirement should be provided adjacent to the Bay:

2. The Bay Plan Maps indicate 78 marinas and 26 fishing pier sites. If present trends continue, these will be adequate for the immediate future but not for the next 50 years. Therefore, all sites indicated on the maps should be reserved for marina and fishing pier installations. In addition, the Bay agency should allow other marinas, boat-launching lanes, and fishing piers anywhere on the Bay, provided they would not preempt land needed for other priority uses and provided they would be feasible from an engineering viewpoint.

3. The following general standards have been used in determining locations for each type of recreational facility:

- a. General: Each type of facility should be well distributed around the shores of the Bay to the extent consistent with more specific criteria below. Any concentrations of facilities should generally be as close to major population centers as is feasible. Recreational facilities should not preempt sites needed for ports, waterfront industry, or airports, but efforts should be made to integrate recreation into such facilities to the extent they might be compatible. Different types of compatible recreational facilities should be clustered to the extent feasible to permit joint use of ancillary facilities and provide greater range of choice for users.
- b. Marinas and launching lanes: (1) Sites that tend to fill up rapidly with silt or mud should be avoided, (2) launching lanes should not be placed where wind and water conditions might be dangerous for smaller boats, (3) launching lanes should be located near prime fishing areas and near calm, clear water suitable for water-skiing.
- c. Fishing piers should not block navigation channels, nor interfere with normal tidal flow.
- d. Beach sites: (1) Beaches for swimming and sun-bathing should generally be in warm areas protected from the wind, and where the waters of the Bay are the warmest.

(2) Some new beaches could be planned adjacent to power plants or other industrial plants that warm the nearby waters as they discharge heated water that has been used to cool industrial machinery.

- e. Water-oriented commercial-recreational establishments should be encouraged in intensively urban areas adjacent to the Bay. Effort should be made to link commercial recreation centers (and major shoreline parks) by a fleet of small, inexpensive ferries similar to those that operate on some European lakes and rivers.

4. Features to be included. To assure optimum use of Bay recreational facilities, the following facilities should be encouraged in shoreside parks and in or near yacht harbors or commercial ferryboat facilities.

- a. In shoreside parks: (1) Where possible, parks should provide some camping facilities accessible only by boat. Up to 2,200 such campsites will be needed by the year 2020. In addition, docking and picnic facilities should be provided for boaters. (2) To capitalize on the attractiveness of their Bayfront location, parks should emphasize hiking, bicycling, riding trails, picnic facilities, viewpoints, beaches, and fishing facilities. Recreational facilities that do not need a waterfront location, e.g., golf courses

and playing fields, should generally be placed inland.

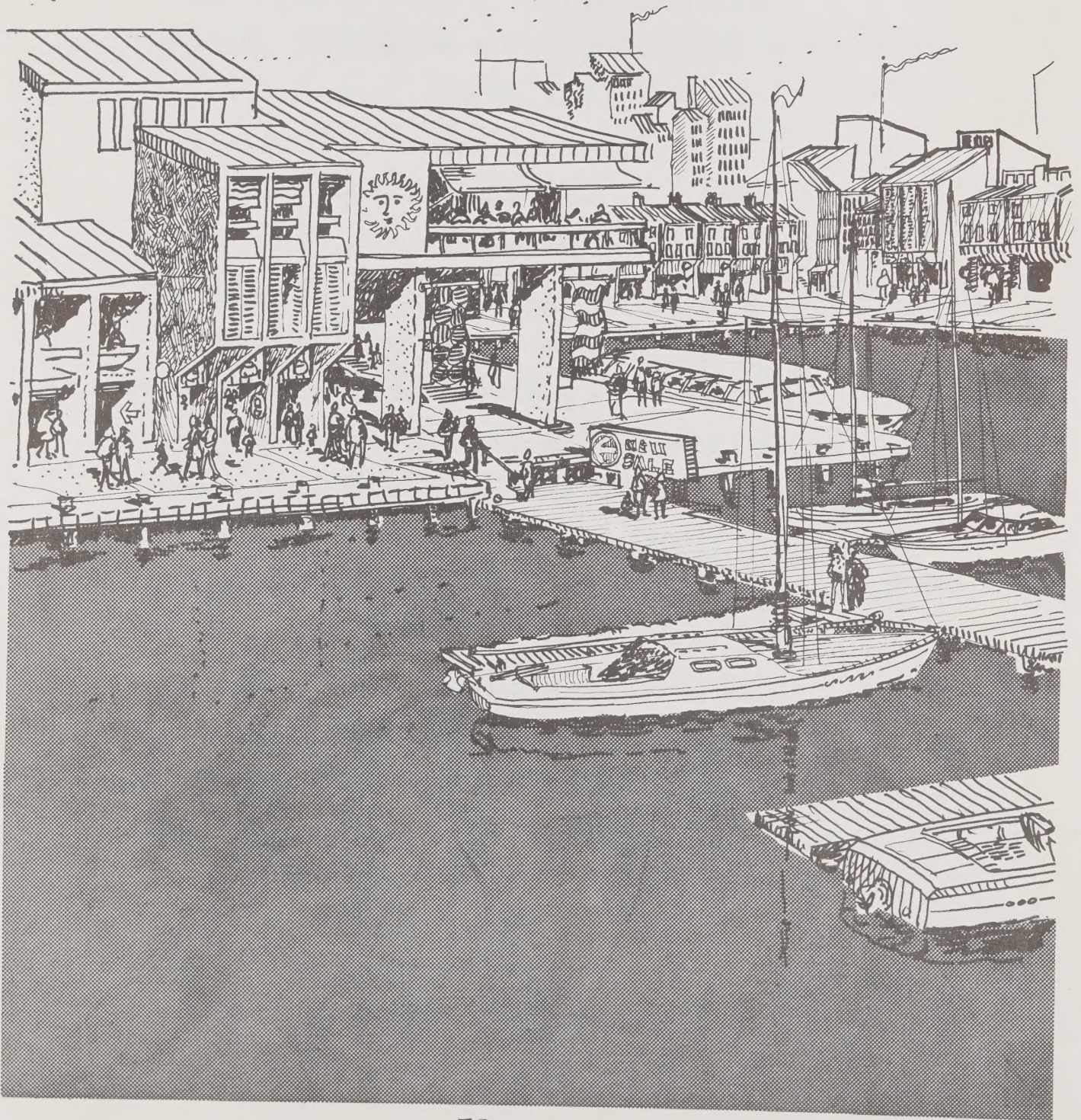
(3) Where shoreline open space includes areas used for hunting waterbirds, public areas for launching rowboats should be provided so long as they do not result in overuse of the hunting area. (4) Where open areas include ecological reserves, access via catwalk or other means should be provided for nature study to the extent that such access does not excessively disturb the natural habitat.

- b. In or near yacht harbors or commercial ferryboat facilities: Private boatels and restaurants.

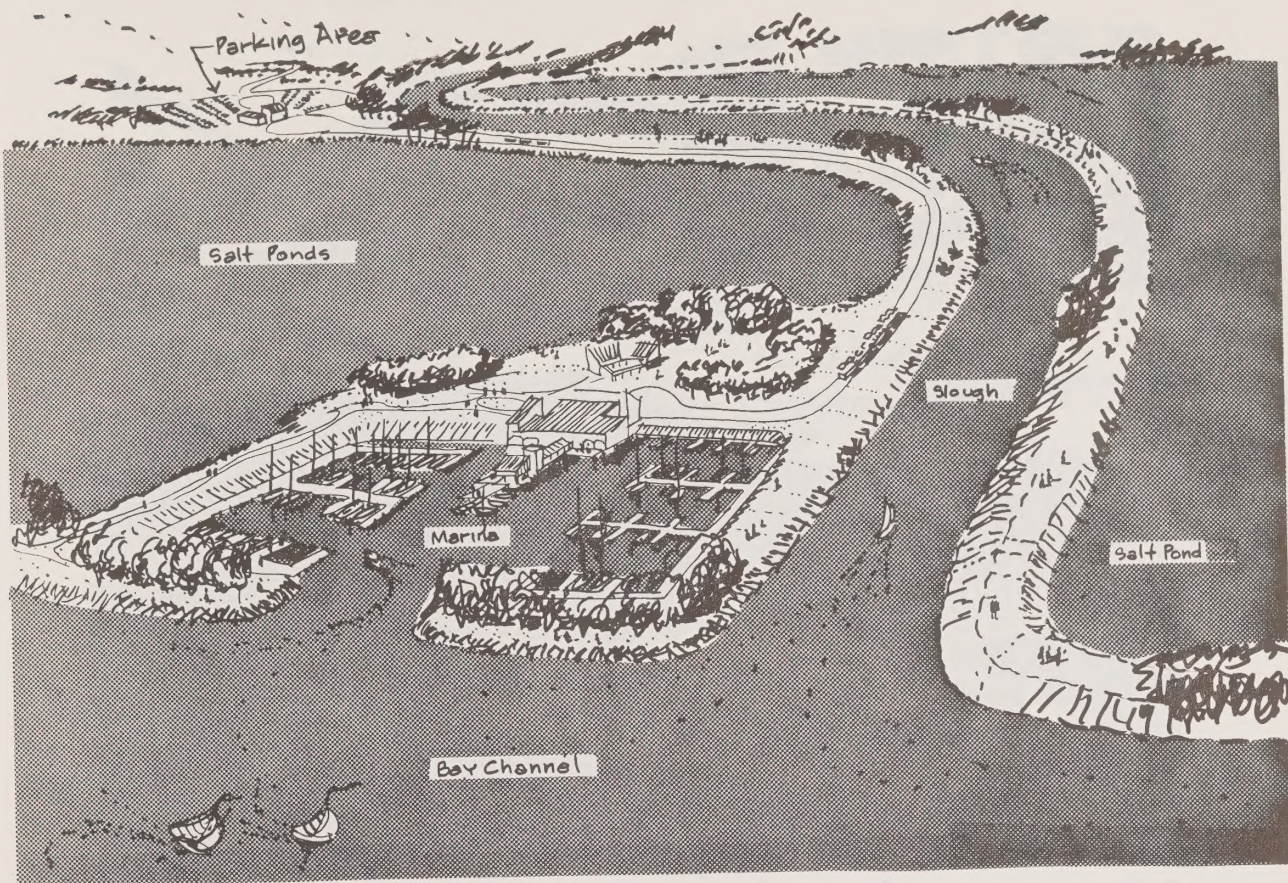
5. All the waterfront land needed for recreation by the year 2020 should be reserved now, because delay may mean that needed shoreline will otherwise be preempted for other uses. However, recreational facilities need not be built all at once upon the land; their development can proceed in accordance with recreational demand over the years.

6. Because of the need to increase the recreational opportunities available to Bay Area residents, small amounts of Bay filling may be allowed for shoreline parks and recreational areas that provide substantial public benefits and that cannot be developed without some filling.

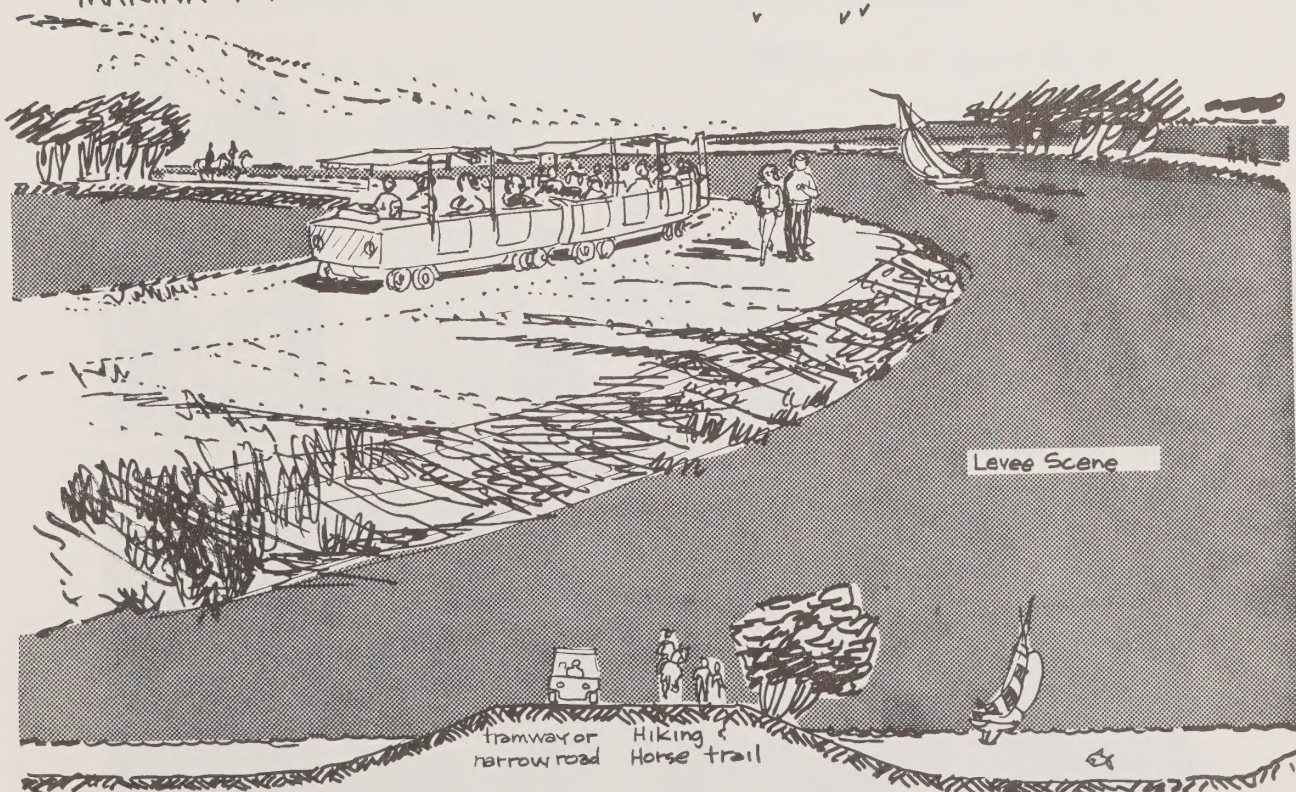
COMMERCIAL RECREATION AT WATERFRONT



BAYSIDE PARK IN SOUTHBAY SALT POND AREA

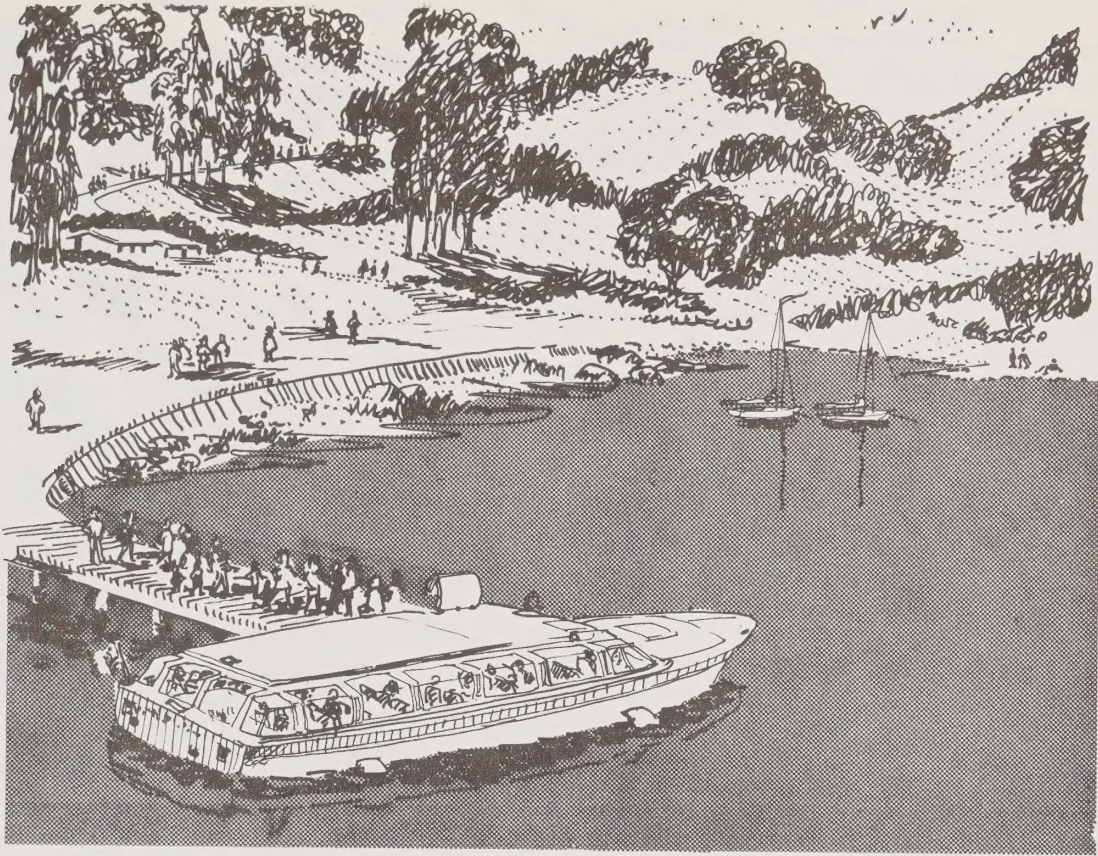


MARINA & PARK

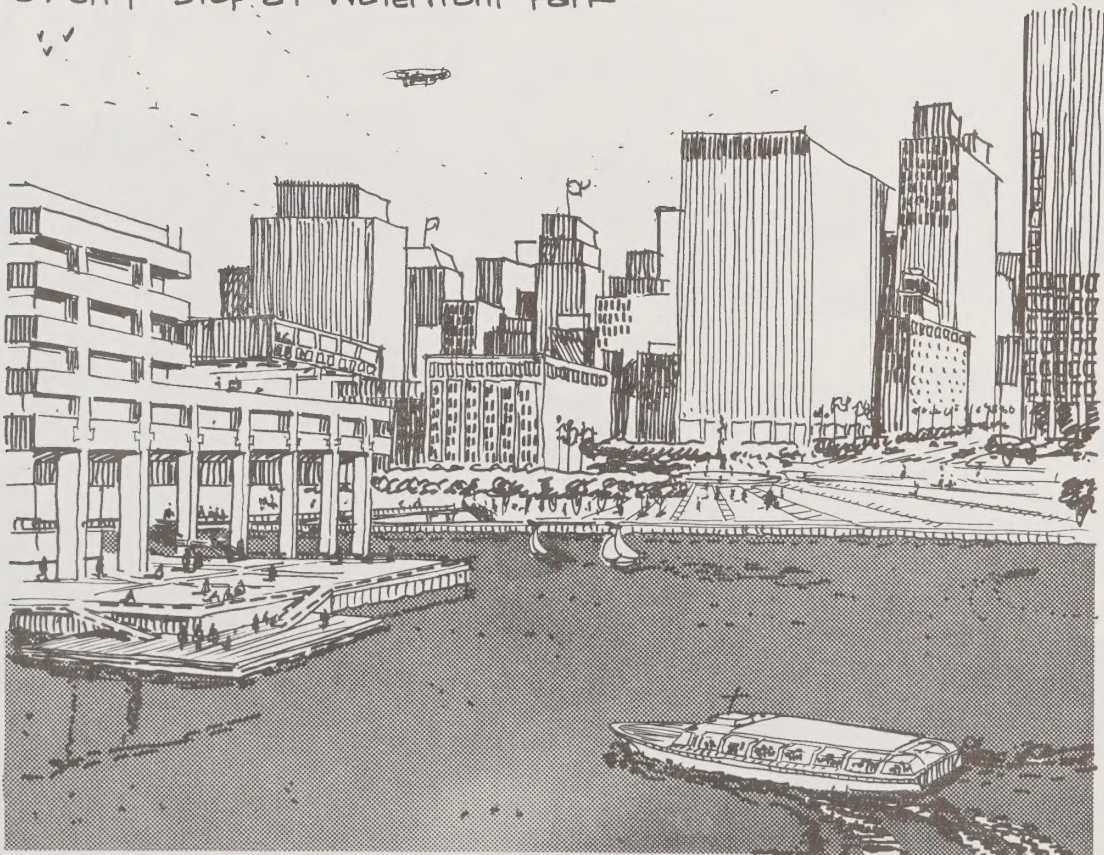


LEVEE DETAILS

RECREATIONAL FERRY SYSTEM



1 Ferry Stop at Waterfront Park



2. Ferry Stop in an Urban Area

findings and policies concerning

SCENIC VIEWS of the Bay

Findings

* Probably the most widely enjoyed "use" of the Bay is simply viewing it from afar and from many different locations. One indicator: a Bay view can add 8 to 10 per cent to the value of a home, office, or apartment building in San Francisco. And there is little question the Bay is a major visitor attraction for the tourist industry.

* But full advantage has not been taken of the dramatic view potential from the hills surrounding the Bay, often because of poor road layout and poorly located buildings or plantings. There are some local zoning controls on building heights but there is no general attention to maximizing views from roads and to obtaining public view areas.

Policies

1. All effort to provide, enhance, or preserve views of the Bay from public areas should be maximized.

2. Shoreline developments should be built in clusters, leaving open area around them, to permit more frequent views of the Bay.

3. Views of the Bay from vista points and from roads should be maintained by appropriate arrangements and heights of all developments and landscaping. In this regard, particular attention should

be given to all areas at waterfront locations, areas below vista points, and areas along roads that provide good views of the Bay for travelers, particularly areas below roads coming over ridges and providing a "first view" of the Bay (shown in Plan Map 2, Proposed Priority Use Areas).

4. Vista points should be provided in the general locations indicated in the Plan Maps. Access to vista points should be provided by walkway, tramway, etc., if adjacent parking is not feasible or desirable. In some cases, exhibits, museums, or markers would be desirable at vista points to explain the value or importance of the areas being viewed.

5. Scenic parkways commanding views of the Bay should generally be encouraged in the hills above the Bay and in areas along the shores of the Bay.

6. New or remodeled bridges across the Bay should be designed to permit maximum viewing of the Bay and its surroundings by both motorists and pedestrians. Guard rails and bridge supports should be designed with views in mind.

findings and policies concerning

OTHER USES OF THE SHORES of the Bay

Findings

* In addition to the foregoing high-priority uses of the Bay and its shores, there are at present many other uses of the shores of the Bay, including:

Housing

Public Facilities (prisons, military installations, etc.)

Public Utilities (power transmission lines, pipelines, etc.)

Industry Not Related to the Bay

Recreation Facilities Not Related to the Bay

Commercial Facilities Not Related to the Bay

Roadways

Refuse Disposal Sites

* Some uses of the shore take no advantage of the water as an asset, and many current uses abuse and despoil the water frontage.

* At present, there is no regional coordination of all the means of moving people and goods that make up the total transportation system of the Bay Area. Primary emphasis in the past has been placed on freeways, which in some instances have been built on fill in the Bay because acceptable routes could not be found ashore. Similarly, little attention has been given to using the waters of the Bay for modern boat transportation.

Policies

1. Shore areas not needed for any of the priority uses may be used for any purpose that treats the Bay as an asset to its development.

2. Wherever waterfront areas are used for housing, (a) the amount of shoreline and the surface area of the Bay should be increased to the maximum extent feasible by dredging additional channels inland from the Bay, and (b) whenever feasible, higher densities should be encouraged to provide the advantages of waterfront housing to larger numbers of people. Houseboat clusters may be permitted in some shoreline areas provided the boats (1) would not adversely affect the ecology of the Bay, (2) would not cause a harmful amount of sedimentation, (3) would not discharge any untreated wastes into the Bay, (4) would require no fill other than a pedestrian boardwalk on piling, and (5) would be acceptable to local governments having jurisdiction over the areas in question.

3. Whenever waterfront areas are used for high voltage transmission lines, (a) the most pleasing tower and pole design possible should be used, (b) new routes should avoid interfering with scenic views to the greatest extent possible, and (c) undergrounding should be used when technically and economically feasible.

4. Whenever waterfront areas are used for power distribution and telephone lines, the lines should either be placed underground (or in an attractive combination of underground lines with

streamlined overhead facilities) in any new residential, commercial, public, or view area near the shores of the Bay.

5. Whenever waterfront areas are used for sewage treatment or waste water reclamation plants, the plants should be located where they do not interfere with and are not incompatible with residential, recreational, or other public uses of the Bay and shoreline.

6. New AM and short-wave radio transmitters may be placed in marsh or other natural areas. Whenever possible, however, consolidation of transmitting towers should be encouraged.

7. Desalinization plants may be located in any area where they do not interfere with and are not incompatible with residential, recreational, or other public uses of the Bay and shoreline, provided that any pollution problems resulting from the discharge of large amounts of heated brine into Bay waters can be precluded.

8. Pipeline terminal and distribution facilities near the Bay should generally be located in industrial areas, but they may be located elsewhere if they do not interfere with and are not incompatible with residential, recreational, or other public uses of the Bay and shoreline.

9. Primary reliance on the automobile for surface transportation in the Bay Area means further pressures to use the Bay as a route for future freeways. Therefore, the primary goal of Bay transportation planning should be substantial reduction in dependence on the automobile. While the private car will still be

needed and used for many types of travel, the goal should be development of new systems of transportation that can carry large numbers of persons without damaging the environment of the Bay Area. Massive use of the automobile during a time of rapid population growth in the Bay Area endangers the environment both because of the air pollutants emitted by automobiles and because of the space required by automobiles for roadways and for parking.

- a. The Bay represents a great but, at present, little-used resource for transportation within the region. New types of faster barges may be able to move trucks and freight from point to point within the region at low cost and without adding to surface congestion. Also, a system of modern ferries (capable of high speeds with minimum noise and waves) could initially provide service between major traffic generators (e.g., between downtowns or between downtowns and airports) and eventually provide scheduled service from one end of the Bay to the other for both business commuting and pleasure use.
- b. Because of the continuing vulnerability of the Bay to being filled for freeways, a more effective research and development system must be created to test and inaugurate new methods of transportation within the Bay Area.

- c. If any additional freeway or bridge route is proposed in or across the Bay beyond those indicated on the Plan Maps, the following considerations should apply:
- (1) adequate research and testing should have been conducted to determine that new methods of transportation could not overcome the particular congestion problem, (2) a tunnel beneath the Bay should be used if at all feasible, (3) if a route must be located over the Bay, the following provisions should apply:
 - i. The route should be placed on bridge-like structures, not on fill.
 - ii. Structures should provide adequate clearance for commercial ships, Navy ships, and pleasure boats to have uninterrupted passage at all times.
 - iii. Toll plazas, service yards, or other ancillary features should be located on existing land, not on new fill.
 - iv. To provide maximum ultimate capacity on any new major facility that is allowed over the Bay (and thus to minimize the number that might have to be allowed in the Bay), the design of the structures should anticipate future mass transit facilities (unless they are adequately paralleled by such facilities) and subsequent installation of automatic power and guidance elements for vehicles.

10. Uses that do not treat the Bay as an asset to their development should not be allowed in shore areas. Such uses include: (a) refuse disposal (except as it may be found to be suitable for an approved fill), (b) use of deteriorated structures for low-rent storage or other non-water related purpose, and (c) junkyards.

findings and policies concerning

APPEARANCE AND DESIGN

of Development Around the Bay

Findings

* Much too often, shoreline developments have not taken advantage of the magnificent setting provided by the Bay. Shoreline developments are often of poor quality or are inappropriate to a waterfront location. Collections of debris sometimes mar the appearance of shoreline marshes, mudflats, and sloughs.

* The appearance of the Bay, and man's enjoyment of it as a scenic resource, contribute to the enjoyment of daily life in the Bay Area.

Policies

1. To enhance the visual quality of development around the Bay and to take maximum advantage of the attractive setting it provides, the shores of the Bay should be developed in accordance with the Bay plan's General Development Guide (in Plan Map appendix).

2. All Bayfront development should be designed to enhance the pleasure of the user or viewer of the Bay. To this end, planning of waterfront development should include participation by professionals such as landscape architects, urban designers, or architects, working in conjunction with engineers and professionals in other fields.

3. Towers, bridges, or other structures near or over the Bay should be designed as landmarks that suggest the location of the waterfront when it is not visible, especially in flat areas. But such landmarks should be low enough to assure the continued visual dominance of the hills around the Bay.

4. Additional surface crossings of the Bay should be avoided to the extent possible to preserve the visual impact of the large expanse of the Bay. The design of new crossings deemed necessary should respect the fact that the Bay consists of a series of natural "bowls," "closed" at each end by a constriction. The crossing should be placed whenever feasible at such "ends" between promontories or other land forms that naturally suggest themselves as connections reaching across the Bay (but without destroying the obvious character of the promontory). To the extent possible, crossings should also be of one "family" of structural types (e.g., all might be suspension bridges).

5. Access routes to Bay crossings should be designed in a manner that orients the traveler to his new direction of movement in relation to the water (as in the main approaches to the Golden Gate Bridge). Similar consideration should be given to the design of highway and mass transit routes paralleling the Bay at any elevation (by providing frequent views of the Bay or by having turns toward or away from the water made in sight of the water, if possible, so the traveler knows which way he is moving in relation to the Bay).

6. Developments near the mouth of tributary waterways should be designed to preserve the view of the junction of the tributary with the Bay from as far upstream as the alignment of the waterway will permit, so as to preserve maximum visual contact with the Bay. Developments farther upstream, beyond the view of a tributary's mouth, should be used for purposes related to the Bay, if at all possible (e.g., marina and boat service facilities or private docks, on navigable tributaries).

7. In areas of the Bay where oil and gas drilling or production platforms are permitted, only the minimum number of platforms necessary to recover the oil or gas should be permitted, and platforms and structures on them should be no larger than necessary. All platforms and equipment on them should be painted or screened so they will be compatible with the surrounding open water, mudflat, marsh, or shore area.

8. "Unnatural" debris should be removed from sloughs, marshes, and mudflats that are retained as part of the ecological system. Sloughs, marshes, and mudflats should be restored to their former "natural" state if they have been despoiled by human activities.

9. A design review system is needed to evaluate developments that affect the appearance of the Bay. The system must have sufficient control and authority to make it effective. Initially, (a) city and county governments, and all affected regional, state

and federal agencies, should use the basic design guide for affected developments, and (b) a regional design review board should review the proposed design of all projects and strive for a high level of design quality. Subsequently, the Bay agency might by ordinance adopt basic design controls upon recommendation of the design review board.

10. In some shoreline projects, a small amount of fill may be allowed if the fill is necessary -- and is the minimum absolutely required -- to develop the site in accordance with the Bay agency's design recommendations.

findings and policies concerning

PUBLIC ACCESS to the Bay

Findings

* San Francisco Bay is one of the dominant features of the nine-county Bay Area. It has great potential for numerous forms of public enjoyment, including viewing, photography, bird watching, ecological study, fishing, wading, and hiking by or just sitting by it.

* Until recently, there were very few points of public access in the entire 276-mile Bay shoreline. While many communities have recently taken new looks at their waterfronts and have proposed new points of public access to the Bay, the full potential for access to the Bay has by no means yet been tapped.

Policies

1. In addition to the public access to the Bay that will be provided by waterfront parks, beaches, marinas, and fishing piers, maximum feasible opportunity for pedestrian access to the waterfront should be included in every new waterfront development, whether it be housing, industrial, port, airport, public facility, or other use of the shore. If no such access can reasonably be provided, the development should not be allowed on the waterfront

unless it must of necessity be there (i.e., unless it is an industry requiring access to deep-water, a shipping terminal, etc.).

2. Public access should be provided into some "natural" areas retained as ecological assets, to permit study and enjoyment of these areas (e.g., by catwalks or piers in some sloughs or marshes).

3. Any permitted fills should be designed to produce a net increase in the amount of shoreline, to provide additional public access to the Bay.

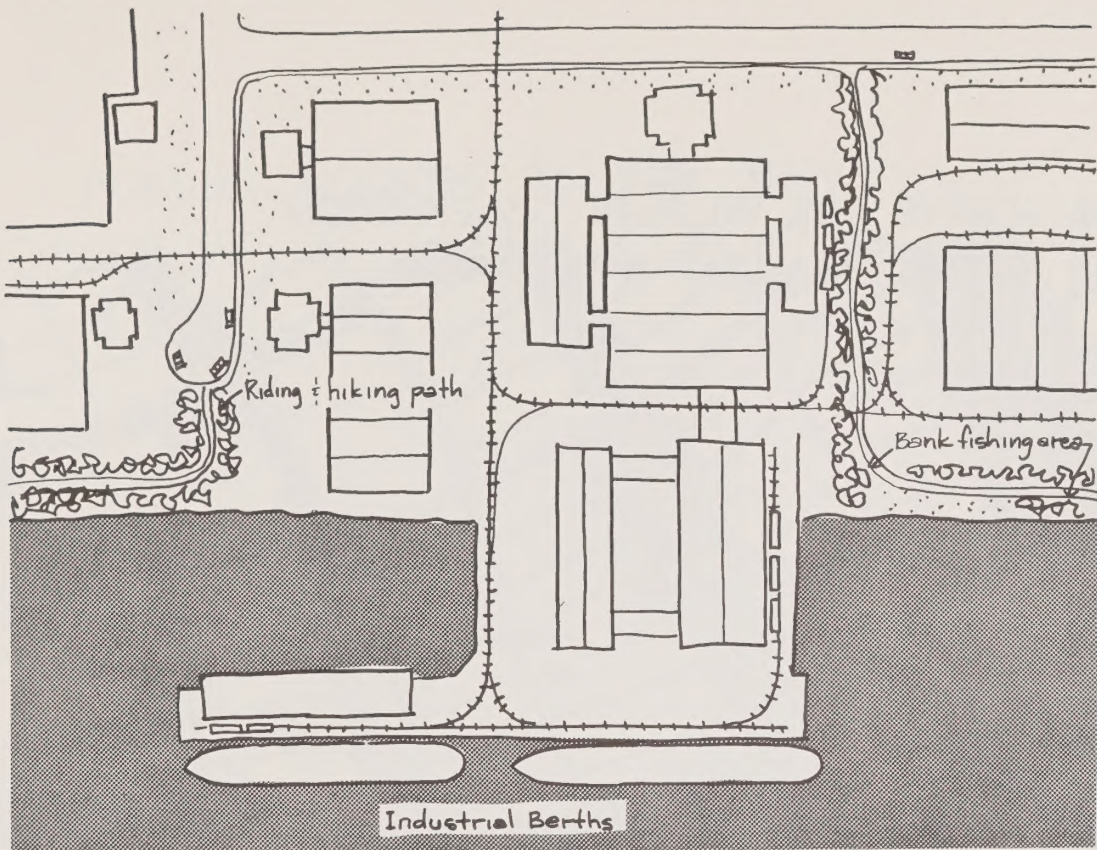
4. Roads near the edge of the water should be designed as scenic parkways for slow-moving, principally recreational, traffic. The right-of-way design should discourage through traffic and provide for safe pedestrian access to the shore.

5. Access to the waterfront should be provided by walkway, tramway, etc., if adjacent parking is not feasible or desirable.

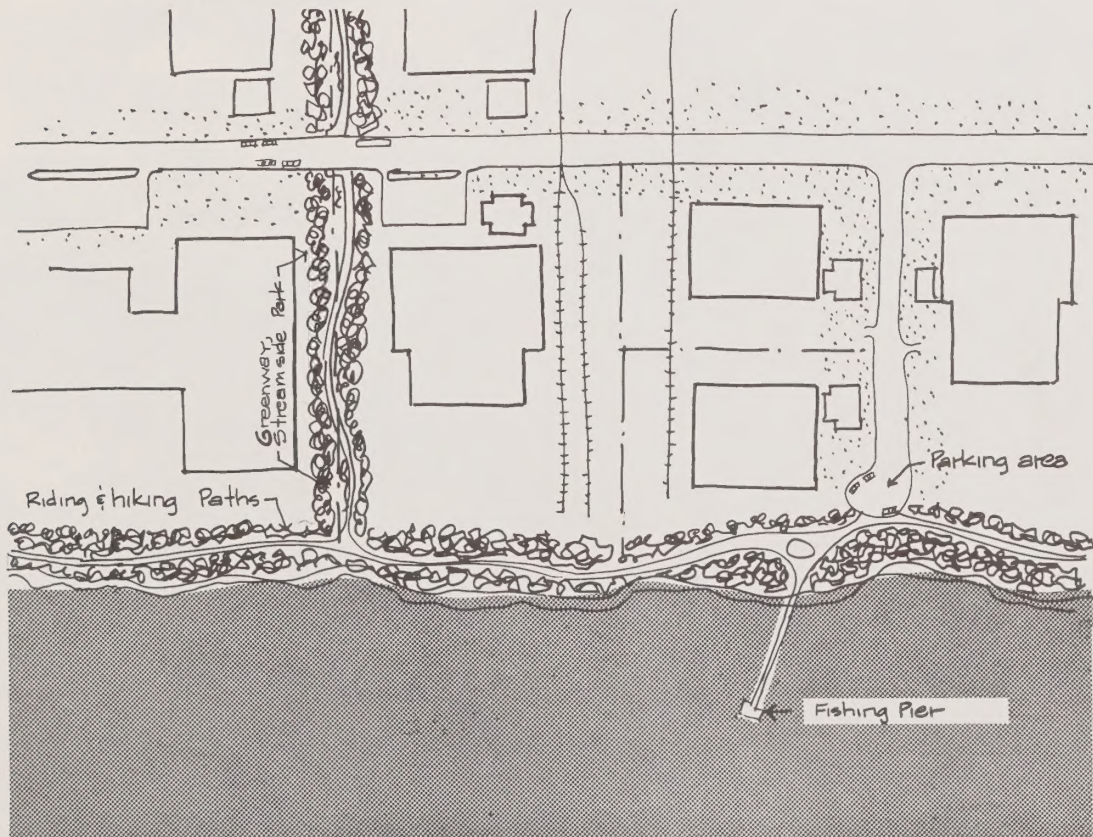
6. In some shoreline projects, a small amount of fill may be allowed if the fill is necessary -- and is the minimum absolutely required -- to develop the site in accordance with the Bay agency's public access requirements.

7. Local jurisdictions and the Bay agency should cooperate to link the entire series of shoreline parks and public access points to the extent feasible without additional Bay filling. Many types of connection can be employed, such as scenic drives, hiking paths, and a system of inland waterways.

PUBLIC ACCESS TO THE BAY IN INDUSTRIAL AREAS

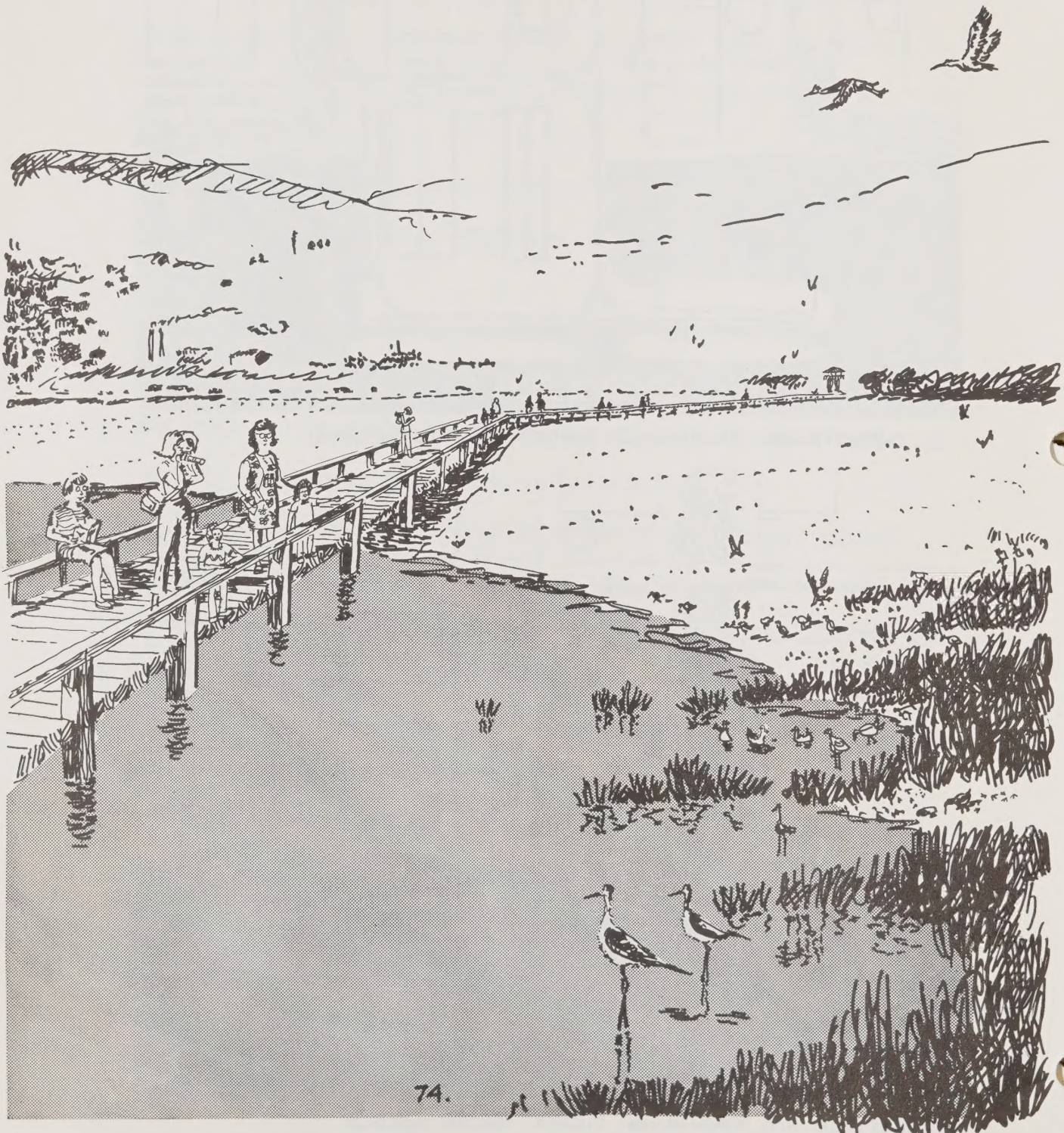


1 INDUSTRIES REQUIRING DIRECT WATER ACCESS

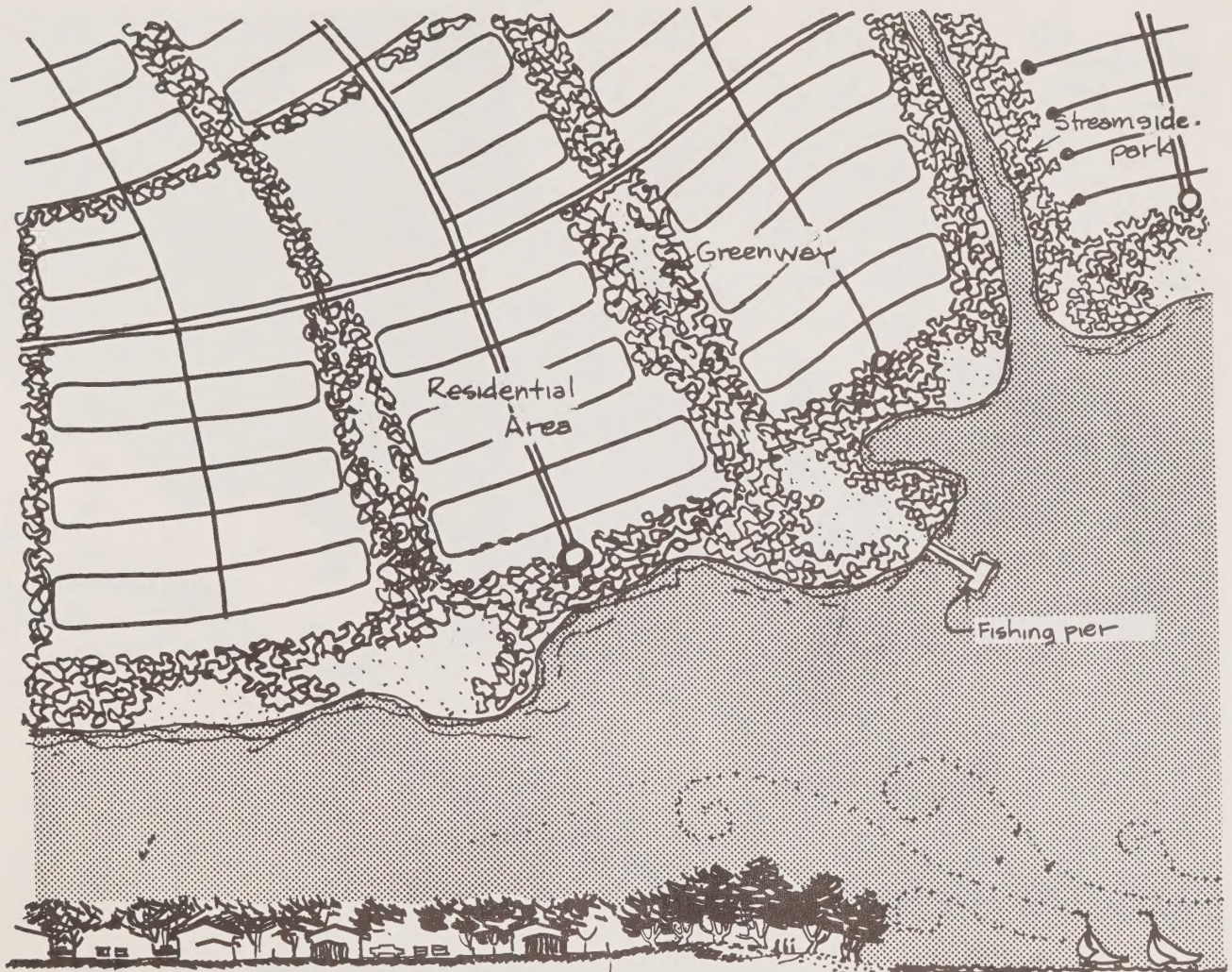


2. INDUSTRIES NOT REQUIRING DIRECT WATER ACCESS

WALKWAYS FOR WILDLIFE OBSERVATION
IN MARSH & SHALLOW WATER AREAS

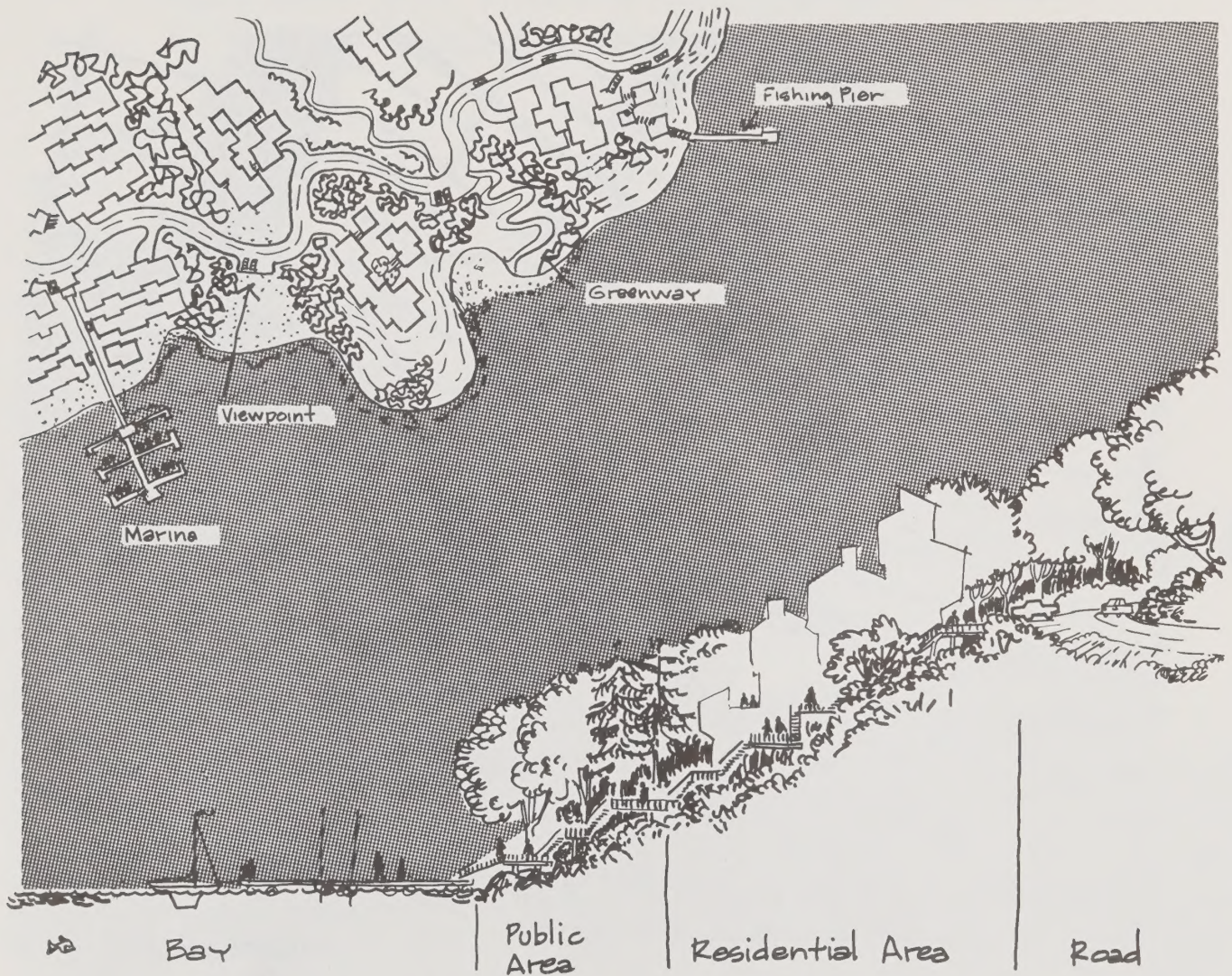


PUBLIC ACCESS TO THE BAY



Residential Area | Public Area | Bay
Residential Area on Flat Site

PUBLIC ACCESS TO THE BAY



Residential Area - Hilly Site

PART V.

THE PLAN MAPS

The maps that follow are an integral part of the Bay Plan. They are based on -- and carry out -- the Bay Plan Policies.

With regard to the Bay, all areas subject to tidal action (and thus planned to be subject to the jurisdiction of the proposed Bay agency) are shown on the maps in gray.

With regard to the shoreline, all areas designated in the Bay Plan Policies as being needed for priority uses are shown in detail. The remainder of the shoreline is not mapped in detail, and is intended to be governed by the Bay Plan Policies for Other Shoreline Uses.

Bay Plan Policies for which precise areas cannot be mapped -- for example, policy statements as to proposed Bay or shoreline roadways -- are printed on the maps in ordinary type. Comments added for clarity, comments indicating alternative proposals, and comments suggesting ideas that are not part of the Bay Plan Policies are printed on the maps in italic type.

NOTES TO
Plan Map 1
NATURAL RESOURCES OF THE BAY
(including Subsidence Areas)

Subsidence Areas. Contour intervals indicate number of feet the land surface and Bay bottom subsided between 1934 and 1968. Additional subsidence occurred before record-keeping began in 1934. Subsidence will continue as long as pumping of ground-water in Santa Clara Valley continues.

Habitat Values. Plan Map shows fish and wildlife habitat areas rated as "high value" and "medium value" by State Department of Fish and Game. Other areas have value as habitat, but lesser value than the portions marked.

Shell Deposits. Oyster shells dredged primarily for use in manufacturing cement.

(Plan Map 1)

NOTES TO
Plan Map 2
PRIORITY USE AREAS

General. This map shows all areas proposed for priority uses -- ports, water-oriented industry, waterfront recreation, airports, and salt ponds and controlled marshes. Most of these areas are shown in greater detail on following maps. In the few cases where complete boundaries for priority use areas are not shown on the detailed maps, the boundaries shown on this map are intended to apply. Also shown on this map are important vista points and "entrance views" (first views of the Bay from roads through passes in hills) that are intended for protection in the same manner as other view points shown on the detailed maps.

(Plan Map 2)

NOTES TO

Plan Map 3

RICHMOND TO BERKELEY

Richmond Port Area. Nearness to deep water offers opportunities for expansion of Richmond port operations. New port development should provide for public access to the Bay, and for waterfront recreation, to the maximum extent feasible.

- ① THE BROTHERS: Preserve islands and lighthouse. Boat access only.
- ② POINT SAN PABLO: As not needed for maritime terminal, develop for recreation.
- ③ POINT MOLATE BEACH: Extend beach from Pt. Molate to Castro Point. Some fill may be needed.
- ④ POINT MOLATE PROPOSED PARK: If not needed by Navy, develop park. Conserve historic buildings. Underground fuel storage tanks in the Pt. Molate hillsides could be leased to industry.
- ⑤ CASTRO ROCKS: Protect seal hauling ground. No public access.
- ⑥ RED ROCK: Preserve island. No development.

(Plan Map 3)

NOTES TO
Plan Map 4
BERKELEY TO OAKLAND

Oakland North Harbor Area. Available information indicates adequate port terminals for Bay Area can be provided without massive fill north of Bay Bridge proposed by Port of Oakland. Therefore, Oakland North Harbor fill not included in Bay Plan. But North Harbor proposal should be re-evaluated if new shipping technology using containerships and special trains becomes feasible (would be used to speed cargo in containers between Orient and East Coast of United States). Container-ship-special train terminal could be located at Oakland, Benicia, or Richmond. Decision should be based on providing needed port facilities with least amount of Bay filling.

San Leandro Bay. Bay Plan includes Alternative A, one of four proposals for San Leandro Bay in report to Port of Oakland by consultants Wilsey and Ham. Alternative A emphasizes maintaining ecology and increasing recreation. Some dredging required for boating.

Bay Farm Island. About 1,000 acres diked and now being filled, planned for housing. Bay Farm Island adjacent to Oakland airport, possible site for airport-oriented industry. Bay Farm Island development should not interfere with aircraft operations at Oakland airport.

(Plan Map 4)

NOTES TO
Plan Map 5
SAN LEANDRO, HAYWARD

(Plan Map 5)

NOTES TO

Plan Map 6

SANTA CLARA AND SOUTHERN ALAMEDA COUNTIES

Dumbarton Bridge Approach. If salt ponds north and south of bridge approach are ever removed from salt production, dikes could be breached and ponds opened to tidal action; water circulation might thus be improved. (This would involve public purchase or required opening of dike as part of plan to urbanize other pond areas.) Opening ponds should be considered in design of new Dumbarton Bridge and Freeway; present causeway on earth fill might be replaced by structure on pilings.

Toll Plaza. Best site for toll plaza for new Dumbarton Bridge is difficult to determine: toll plaza should avoid cutting into Coyote Hills, should avoid filling of Bay or salt ponds, and should be satisfactory distance from interchange with proposed Freeway Route 61. Similar location problems exist on west shore. Further study required, including consideration of collecting tolls in manner not necessitating toll plaza.

Access to Marinas Outside Salt Ponds. In some cases, marinas are shown on plan Bayward of Leslie salt ponds. Access to marinas would require cooperation of Leslie Salt Co. Parking would not be provided near marinas, both because fill would be needed and because salt pond dikes would not accommodate heavy vehicles. Access might be provided by lightweight shuttle vehicles atop dikes, with parking confined to areas ashore.

Water Quality. Water at extreme south end of Bay is often polluted so as to discourage recreational use of sloughs and Bay. Greater recreational use will require improved water quality. Recommendations for improving water quality will be part of 1969 plan of Bay-Delta Water Quality Control Program.

Subsidence. As indicated in Plan Map 1, area subject to future subsidence. Construction in or near Bay should be carefully planned, taking into account effects of future subsidence.

(Plan Map 6)

NOTES TO

Plan Map 7

SOUTHERN SAN MATEO COUNTY

Greco Island. Largest remaining marsh in South Bay. Marsh and adjacent mudflats are important feeding area for birds. Area used by California Clapper Rail, rare species of bird endangered by loss of habitat.

Scenic Waterways. Improve for boating. Banks should be landscaped, but without damage to marshes.

(Plan Map 7)

NOTES TO
Plan Map 8
NORTHERN SAN MATEO COUNTY

Burlingame Waterfront. Presently undeveloped. Detailed planning needed to determine most desirable waterfront design emphasizing recreation with minimum of Bay filling.

San Mateo (City) Waterfront. Presently undeveloped. Detailed planning needed to determine most desirable waterfront design emphasizing recreation with minimum of Bay filling.

Shoreline Channel (suggested). Dredging shallow-draft channel parallel to shore would greatly increase recreational opportunities, for small boats and recreational ferries. Could be done in manner separating ecologically-valuable marshlands and mudflats from shoreline, without damage to ecology. Dredged mud could be carefully placed to create new marsh, but dredging might be costly.

(Plan Map 8)

NOTES TO

Plan Map 9

SAN FRANCISCO AND BRISBANE

San Francisco Waterfront. Scenic transit system (special bus, elephant train, cog railway, etc.) could be major waterfront attraction, could eventually operate entire distance from Golden Gate Bridge (or even Ocean Beach) to Ferry Building (or south to India Basin).

Hunters Point Freeway at Candlestick Point. Tentative route on east side of Candlestick Park leaves little land for recreation and would require structure in Bay to connect with Bayshore Freeway. If connection is close to Candlestick Point, large overpass structure will be required, marring present spectacular views of Bay for motorists heading south on Bayshore Freeway at Bayview Hill. If connection is farther south, in Brisbane, long structure in Bay will be required. Alternative route is suggested for consideration; this route would pass between Bayview Hill and Candlestick Park, permitting underpass connection with Bayshore Freeway, preserving views, and omitting necessity for long trestle in Bay.

(Plan Map 9)

NOTES TO
Plan Map 10
SOUTHERN MARIN COUNTY

Pt. San Quentin, Possible Commute Ferry Terminal. No fill for parking beyond existing dikes.

Tiburon, Possible Commute Ferry Terminal. To minimize traffic and parking problem, should be served by mass transit or else designed to serve southern Marin only with another terminal built to serve northern Marin.

Tiburon Blvd. Widening. Minimize fill by using existing road-bed (or perhaps railroad right-of-way) as part of new right-of-way. Preserve marked hill.

Richardson Bay. Under study. Problems: (1) Major dredging required because of siltation, (2) Access needed to upper reaches west of U.S. 101 Freeway for potential marinas, (3) Complex ownership pattern. Objectives of current study: To provide suitable private development, a shoreline park, and a scenic drive with minimum Bay filling.

Sausalito Recreational Ferry. Ferry terminal could be connected to central area by "elephant train" along waterfront or Bridgeway. Or terminal could be placed in central area if parking can be provided.

Sausalito, Possible Commute Ferry Terminal. To minimize traffic and parking problem, should be served by mass transit or else designed to serve Sausalito and Mill Valley only with other terminals serving rest of Marin.

Appearance and Design. Housing density in hills of Sausalito, Tiburon and Belvedere should respect the topography; cluster development appropriate in some areas.

(Plan Map 10)

NOTES TO

Plan Map 11

WESTERN SAN PABLO BAY

Park Proposal for Area South of Hamilton AFB. Large, undeveloped area between Hamilton AFB and Gallinas Creek possible site for major county park. Due to extensive offshore mudflats, would not be suitable for water-oriented recreation.

Shoreline Channel (suggested). Dredging shallow-draft channel parallel to shore would greatly increase recreational opportunities, for small boats and recreational ferries. Could be done in manner separating ecologically-valuable marshlands and mudflats from shoreline, without damage to ecology. Dredged mud could be carefully placed to create new marsh, but dredging might be costly.

(Plan Map 11)

NOTES TO

Plan Map 12

EASTERN SAN PABLO BAY

Salt Ponds and Other Diked Wetlands. Large area, high-value
wildlife habitat.

(Plan Map 12)

NOTES TO

Plan Map 13

CARQUINEZ STRAIT

Benicia State Park. Proposed park expansion should encompass principal overlooks and ridges on north side of strait, to preserve rugged and scenic character of hills, presently undeveloped.

Scenic Area, South Side of Carquinez Strait. Scenic area between Crockett and Martinez should encompass principal overlooks, ridges, and scenic road on south side of strait, to preserve rugged and scenic character of hills, presently undeveloped.

(Plan Map 13)

NOTES TO
Plan Map 14
SUISUN BAY

Diked Wetlands. Thousands of acres of controlled marshes are maintained by duck-hunting clubs as wildfowl habitat. Areas are diked, but dikes are opened for periodic flooding. Suisun Soil Conservation District protects and enhances marshland areas.

(Plan Map 14)

NOTES TO

Plan Map 15

HONKER BAY TO COLLINSVILLE

Recreational Potential. Extensive, valuable recreational potential in river and island areas (e.g., Sherman Island-"Sherman Lake" area popular for boating, fishing). Recreational use should be encouraged.

Collinsville Industrial Potential. Montezuma Slough-Collinsville area receiving increased attention as potential site for water-related industry. One of largest potential industrial sites anywhere in Bay. Adjacent to deep-water shipping channel, railroad access provided, land is flat. Large industrial area has little waterfrontage, requires sharing of waterfront if several industries are to be accommodated.

(Plan Map 15)

PART VI.

CARRYING OUT
THE PLAN

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A Regional Agency is Needed

To carry out the Bay plan effectively, the successor to BCDC should be a regional agency. The agency should have the power to plan, analyze, and regulate the entire Bay and shoreline as a unit. The agency's jurisdiction should include Baylands and shoreline areas in the nine Bayfront counties.

The plan for the Bay can be carried out by either of two types of governmental agency: (1) a single-purpose agency, concerned only with the Bay, or (2) a multi-purpose, limited regional government, concerned with other regional matters in addition to the Bay.

The Commission recommends that a limited regional government be created for the Bay Area. A limited regional government would (1) avoid further fragmentation of regional responsibility by forestalling the proliferation of additional special-purpose districts, (2) be able to consider the overall needs of the region as a whole, and thus minimize wasteful duplication in regional development, and (3) attract broad public attention and thus help to insure public awareness of regional problems and needs. As one of its principal assignments, a limited regional government should be required to carry out the BCDC plan for the Bay and shoreline.

If a limited regional government is not established, the Commission recommends that a special agency be created to carry out the plan for the Bay. To the maximum extent feasible, the special Bay agency should be created so as to permit smooth transfer of

powers to a limited regional government that might be created in the future.

Either type of agency should have a governing body that is responsive to the regional interests and needs of Bay Area residents. Therefore, the Commission recommends that (1) members of the agency's governing body serve staggered, four-year terms to provide continuity, (2) the governing body have only as many members as are necessary to insure effective representation, probably 20-40 members, (3) the governing body of a limited regional government be chosen by a combination of direct election from districts and appointment by boards of supervisors and city councils, and (4) the governing body of a special Bay agency be constituted in roughly the same manner as the present BCDC (which consists of appointees of the governor, the Legislature, counties, cities, and state, regional, and federal agencies).

Either type of regional agency should be organized in a manner that encourages effective leadership and performance. Therefore, the Commission recommends that the agency have (1) a governing body that has sufficient responsibilities to attract highly qualified members, and is organized to operate efficiently, (2) a strong chief executive to provide regional leadership, and (3) an efficient staff. The chief executive should have a four-year term and should be chosen either (1) by election at large in the Bay Area, or (2) by vote of the regional governing body.

Scope of Authority Required

Protection of the Bay and enhancement of its shoreline are inseparable parts of the Bay plan. Clearly, what happens to the shoreline helps determine what happens to the Bay; if, for example, the relatively few shoreline areas suitable for water-oriented industry are used for housing, pressures will develop to provide new industrial land by filling the Bay. Therefore, the Bay agency should have adequate controls over both (1) Bay filling and dredging, and (2) Bay-related shoreline development.

Control of Filling and Dredging

1. Permit Procedures

Bay filling (including installation of piers and floats) and Bay dredging should be controlled through a permit system. The Bay agency (whether a single-purpose agency or a part of a limited regional government) should be empowered to issue or deny permits for any filling and dredging in the Bay. Any public agency or owner of privately-held lands should be required to obtain a permit before proceeding with fill or dredging.

Permits should be granted or denied only after public hearings, and only after the city or county having jurisdiction over the area of the proposed project has made its views known to the Bay agency (or has failed to do so within a reasonable period of time). Permits should be granted by the affirmative vote of a majority of the members of the governing body of the Bay agency.

The costs of processing permit applications should be borne by the applicants, not by the general public. In some cases, the costs would be nominal; in others, they might be relatively high, depending on the complexity of the work involved. The Bay agency should establish a fee schedule to cover the costs of reviewing permit applications.

A permit should be issued if a proposed project meets the following conditions, each of which is necessary for effectively carrying out the Bay plan.

a. Planning Policies and Maps. A proposed project should be approved if (1) the filling is in accord with the Bay plan policies as to the purposes for which filling is justified, i.e., ports, water-related industry, recreation, possibly airports, and minor shoreline improvements, (2) the filling is shown on the Bay plan maps as likely to be needed or is for a minor shoreline improvement, and (3) the filling is the minimum necessary to achieve its purpose.

b. Safety. Plans for a proposed fill project should be submitted to a Fill Review Board appointed by the Bay agency and consisting of professionals in the fields of geology, structural engineering, and civil engineering (with specialty in soils engineering). The Fill Review Board should determine whether the proposed project is in accordance with the policies for Safety of Fills (p. 28), and should report its recommendations to the governing body of the Bay agency before a permit is issued.

c. Appearance. Plans for a proposed fill project should be submitted to a Design Review Board appointed by the Bay agency and consisting of professionals in the fields of urban design,

architecture, and landscape architecture. The Design Review Board should determine whether the proposed project is in accordance with the policies for Appearance and Design of the Bay and shoreline (p. 65), and should report its recommendations to the governing body of the Bay agency before a permit is issued.

d. Public Access. A proposed fill project should increase public access to the Bay to the maximum extent feasible, in accordance with the policies for Public Access to the Bay (p. 69).

e. Effects on the Bay. Any proposed fills, dikes or piers should be thoroughly evaluated to determine their effects on water circulation and on marshes and mudflats, and then modified as necessary to minimize any harmful effects. Proposed dredging should be in accordance with the Dredging policy (p. 23).

f. Fill Charge. Because any fill -- whether for a worthwhile purpose or not -- damages the Bay in many ways, each fill project should be required to compensate for the damage by either (1) providing an acre of new Bay for each acre filled, through purchase and opening of areas now diked off from the Bay, or (2) paying a fill charge of \$3,000 per acre; all fill charge revenues would be pooled by the Bay agency to buy diked areas for opening to the Bay or otherwise to improve ecological conditions in the Bay.

g. Valid Title. Because there is some question as to the original conditions under which some private claimants first received lands in the Bay, a private owner should be required to show that he has a valid title to any lands proposed for filling.

h. Public Trust. Many owners hold Bay lands subject to rights of the public derived from English common law and the California Constitution as to use of waterways for commerce, navigation, and fishing. These rights, sometimes called the "public trust" for commerce, navigation, and fishing, are the subject of considerable legal debate, and court tests may be required to determine their practical significance. In the meantime, an applicant for a fill permit should be required to show that either the public trust does not apply to his lands, or that the filling would be consistent with the trust.

2. Permit Decisions

If a permit application met the standards listed above, a permit would be granted. If the proposal did not meet these standards, a permit would not be issued. In some cases, however, a permit could be conditionally approved subject to the applicant's later meeting clearly-specified requirements relating to one or more of the eight standards above. In other cases, an applicant might be able to change his proposal to conform to the Bay plan policies, and he could then reapply.

3. Area of Jurisdiction

The Bay agency should control filling and dredging in all areas subject to tidal action (up to a height of 5 feet above mean sea level) from the Golden Gate to the Simmons Point-Stake Point line in Suisun Bay (the area of present BCDC jurisdiction), and also in all sloughs, creeks, and other tributaries to the Bay (other than the Delta) as

far upstream as the tides extend. (These areas are shown in grey on the Bay Plan Maps.)

Developing the Bay and Shoreline to Their Highest Potential

1. Permit Procedures.

The Bay agency should have some jurisdiction over shoreline areas. This is necessary to insure that the shoreline and the Bay are developed to their highest potential and also to insure that pressures for additional Bay filling are not created by poor use of the available shoreline. In general, the Bay agency should have the greatest jurisdiction over aspects of shoreline development that directly affect the Bay, and decreasing jurisdiction over matters of decreasing importance to the Bay. Shoreline development should be controlled through a permit system.

The Bay agency (whether a single-purpose agency or a part of a limited regional government) should be empowered to issue or deny permits for shoreline development, as specifically defined below. Any public agency or private owner holding shoreline lands should be required to obtain a permit before proceeding with any major shoreline development.

Permits should be granted or denied only after public hearings, and only after the city or county having jurisdiction over the area of the proposed shoreline project has made its views known to the Bay agency (or has failed to do so within a reasonable period of time). Permits should be granted by the affirmative vote of a majority of the members of the governing body of the Bay agency.

The costs of processing permit applications for shoreline developments should be borne by the applicants, not by the general public. In most cases, processing costs would be small. The Bay agency should establish a fee schedule to cover the costs of reviewing permit applications.

A permit for shoreline development should be issued if the proposed project is in accordance with the following three standards:

a. Use of Shoreline. The Bay agency should designate shoreline areas in two categories: those needed for priority use, and those available for other uses.

(1) Priority shoreline uses are listed below (not necessarily in order of importance). The Bay agency should designate and reserve the shoreline areas needed for each priority use, in a manner analagous to zoning, and should carry out the appropriate shoreline development policies:

- (a) Ports (policy for Port development on p.38)
- (b) Water-oriented Industry (policy for Waterfront Industry on p. 32)
- (c) Water-oriented Recreation (policy for Shoreline Parks, Marinas, and Fishing Piers on p. 49)
- (d) Airports (policy for Airports on p. 42)
- (e) Salt Ponds and Controlled Marshes (policy for Salt Ponds and Other Diked Wetlands on p. 46)

(2) Other shoreline uses may be of any type that makes a positive use of the Bay (e.g., incorporates the waterfront as an asset in the design of the development) and in no way affects the

Bay adversely, in accordance with the policy for Other Shoreline Uses on p. 59.

b. Appearance. Plans for a proposed shoreline development should be submitted to a Design Review Board appointed by the Bay agency and consisting of professionals in the fields of urban design, architecture, and landscape architecture. The Design Review Board should determine whether the proposed project is in accordance with the policies for Appearance and Design of the Bay and shoreline (p.65), and should report its recommendations to the governing body of the Bay agency before a permit is issued.

c. Public Access. A proposed shoreline development should increase public access to the Bay to the maximum extent feasible, in accordance with the policies for Public Access to the Bay (p.69).

2. Necessity for Jurisdiction

The Bay agency should have this limited shoreline jurisdiction because the total amount of shoreline is relatively fixed, and optimum development requires that (1) sufficient shoreline area be reserved to meet the long-range needs of each priority use, (2) the appearance of the entire shoreline be maintained at a high standard and upgraded wherever necessary, and (3) public access to the Bay be increased wherever feasible. Failure to achieve these objectives will result in reduction in the amount of waterfront industry, ports, airport facilities, and waterfront recreation that the Bay Area can ultimately accommodate, with resulting damage to the region's economy and quality of life, or else pressures to fill the Bay to provide more land for these purposes.

3. Extent of Jurisdiction

For priority uses, the Bay agency's jurisdiction should encompass all of the shoreline area necessary for each use, and should extend sufficiently far inland to include all of the land needed for each use. Initially, the Bay agency should be specifically given the limited jurisdiction outlined in this report over the priority uses shown on the Bay Plan Maps.

For all other shoreline areas, the Bay agency's jurisdiction should extend inland only far enough to assure that no harmful uses are made of the shoreline, that public access is provided wherever feasible, and that attractive design of shoreline developments is encouraged. Therefore, this jurisdiction should extend inland to include each whole parcel of land (or group of parcels in the same ownership and use) bordering the Bay as of September 17, 1965 (the effective date of the BCDC), or should extend inland a distance of 100 feet, whichever is greater.

Local governments should continue to control shoreline development as at present, subject only to the Bay plan's standards as outlined above. The Bay agency should be prepared to assist local governments as necessary in preparing detailed plans for specific shoreline areas.

5. Inland Advisory Role.

The Bay agency should have the specific right and duty to advise publicly on all development proposals, proposed legislation, or other measures that, in the judgment of the Bay agency, would affect San

Francisco Bay. Such measures would include reserving inland industrial sites, developing or expanding inland airports, and any other steps that would relieve development pressures on the Bay; and steps necessary to preserve and enhance scenic views of the Bay from public vista points and scenic roadways. The Bay agency should establish a system whereby information is exchanged between the Bay agency and local governments as to inland proposals affecting the Bay.

6. Regional Development Policies

Many regional matters, such as air and water pollution control, waste disposal, airport development, and regional transportation, are directly related to the future of the Bay. Some of these regional matters are now within the jurisdiction of state and regional agencies, but others are not now being dealt with at all on a regional basis. Some or all of these regional matters could be made the responsibility of a limited regional government, which would in addition carry out the Bay plan, but they could obviously not be made the responsibility of a single-purpose Bay agency. In any event, it is essential that many regional policies directly related to the Bay be carried out if the Bay plan is to be effective. For example:

a. Water quality should be maintained in accordance with the policy on Pollution (p. 14).

b. Port planning and development should be carried out in accordance with the policy on Ports (p. 38).

c. Airport planning and development should be carried out in accordance with the policy on Airports (p. 42).

d. Views from vista points and from public roads should be protected in accordance with the policy on Scenic Views (p. 57).

e. Inland industrial sites should be provided in accordance with the policy on Waterfront Industry (p. 32).

Amending the Bay Plan

The Bay agency should be directed to carry out the Bay plan, i.e., to guide future development of the Bay and shoreline in accordance with the Bay Plan Policies and Bay Plan Maps. Over a period of time, however, it may be expected that new information will come to light and that development trends will not precisely follow predictions made in 1968. The Bay Plan Policies are intended to be comparable to the constitution or charter of a governmental body; i.e., they would probably be changed infrequently. Application and interpretation of these policies, as shown on the Bay Plan Maps, may need adjustment over the years, however.

The Bay agency should therefore be specifically empowered to amend the Bay plan, in accordance with the following procedures:

1. The Bay agency should be directed to make continuing studies of any matters related to the Bay that, in the judgment of the Bay agency, are necessary to keep the Bay Plan Policies and Bay Plan Maps up to date.

2. The Bay agency should be required to conduct a public hearing on any proposal to change the Bay Plan Policies or the Bay Plan Maps.

3. The Bay agency should be able to amend the Bay Plan Policies or Bay Plan Maps upon the affirmative vote of a majority of the members of its governing body.

4. The Bay agency should, in every case, state publicly the reasons for its decision in each case regarding a proposed change in Bay Plan Policies or Bay Plan Maps.

The Bay plan policies and maps permit minor fills where necessary to improve shoreline projects, and also permit minor shoreline construction; any change in either policies or maps would therefore necessarily involve a project of sufficient importance to justify careful study and a formal amendment process that includes public hearings.

Costs of Carrying Out the Bay Plan

Funds are needful to carry out the Bay plan primarily for two purposes: to finance development of the Bay and shoreline to their highest potential, and to pay the operating costs of the agency designated to carry out the Bay plan.

1. Development Costs

Industrial growth along the shoreline will, over the next 50 years, represent the private investment of many millions of dollars. Existing and future port and airport terminals will represent public investments of millions of dollars; but ports and airports return revenues to repay all or part of the public investment.

Recreation will be the most difficult types of shoreline development to finance. In some cases, such as marina development and the Marine World in Redwood City, private investors may be able to provide various types of waterfront recreation; private investment in waterfront recreation should be vigorously encouraged. But even assuming considerable private development, public funds will still be needed on a sizable scale to purchase lands for public beaches, parks, marinas, and fishing piers, and to develop these areas.

The time and funds available to BCDC have not permitted parcel-by-parcel appraisals of the costs of buying all the recreational areas shown on the Bay Plan Maps. The maps show about acres of waterfront recreational land, and the cost to the public of buying these lands today can reasonably be estimated at million; if present inflationary trends continue, however, this cost may be expected to increase substantially with every passing year. [Figures will be inserted as soon as information is available.]

Some of the waterfront recreational lands will undoubtedly be purchased by various units of federal, state, and local government, through their existing park and recreational programs. But additional efforts will still be needed; it appears reasonable to assume that existing programs will buy no more than half of the needed lands. Purchasing the remaining lands will probably require a regional program that could be made the responsibility of a limited regional government, or of a special-purpose recreational agency, or of the Bay agency.

Whichever type of agency is chosen, it will need adequate funds and the power of eminent domain to acquire lands where necessary (both shoreline lands and Bay lands may need to be acquired for public recreational use).

2. Administrative Costs

Carrying out the Bay plan will require, as a minimum, (a) a planning staff to revise the plan as necessary and keep it up to date, and to assist local governments in detailed planning of shoreline areas, (b) a staff to process permit applications, (c) consultant help -- primarily in the fields of engineering and ecology -- to help with future planning and permit processing, (d) engineering review and inspection, to carry out recommendations of the Fill Review Board, (2) attorneys, appraisers, and other technical assistance in the acquisition of any lands bought for recreation, and (f) other normal administrative expenses, such as printing, postage and office rent.

These costs would differ somewhat depending upon whether the agency designated to carry out the Bay plan is (1) an independent autonomous district such as the Bay Area Air Pollution Control District, (2) a State-financed agency such as the BCDC, or (3) a department of a limited regional government. The difference in costs is due primarily to the potential economies available to a general-purpose government, e.g., use of a motor pool, leased telephone lines, centralized personnel and accounting services, etc.

Based on the considerations outlined above, it appears that the annual costs of effectively carrying out the Bay plan would be about \$400-500,000 per year. This is higher than the budget of the BCDC (which has averaged about \$225,000 per year) because the BCDC budget has not included funds for engineering review and inspection of safety aspects of fill projects, funds for staff necessary to acquire recreational lands, or funds for extensive planning assistance to local governments.

3. Sources of Funds

a. Funds for Recreation. Funds for recreational development could be derived from several sources, but most Federal and State funds available for this purpose are given only on a matching basis; i.e., \$1 of outside funds is given for each \$1 of local funds appropriated. For example, the Federal Land and Water Conservation Fund and the open space program of the Federal Department of Housing and Urban Development are potential sources of funds, if the matching funds can be raised in the Bay region. A regional bond issue would be the most conventional source of funds, both for direct purchase of recreational land and for local matching funds. The chances for passage of such bonds would increase materially if the bonds could be repaid from funds other than property taxes, and if, as is the case with State bond issues, a simple majority vote, rather than a two-thirds majority, were sufficient for passage.

b. Funds for Operating Expenses. If the agency designated to carry out the Bay plan were a State agency, presumably it would receive an appropriation annually from the State General Fund. If the agency were an independent special district, such as the Bay Area Air Pollution Control District, it could be empowered to levy a small property tax. A tax of 1¢ per \$100 of assessed valuation in the nine-county Bay Area would now produce about \$1 million in revenue (and would produce more each year as valuations increase); thus a tax of $\frac{1}{2}$ ¢ might suffice for operating expenses. If the Bay agency were part of a limited regional government, it would presumably receive most if not all of its financial support from the regional government; a broader range of tax sources (such as regional sales, income, or excise taxes) could presumably be made available to a limited regional government than to a special-purpose Bay agency.

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